



**Kennecott Utah Copper | Environmental Restoration Group**

South Facilities Groundwater  
2009 Remedial Progress Report

April 2010

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## 1. Introduction

Kennecott Utah Copper LLC (KUC) is conducting groundwater remediation at its South Facilities as selected by the U.S. Environmental Protection Agency (EPA) and the Utah Department of Environmental Quality (DEQ) in a Record of Decision (ROD; EPA 2000) dated December 13, 2000 for the Kennecott South Zone, Operable Unit 2. In response to the ROD, KUC submitted a Final Design for Remedial Action (RDRA; KUC 2002) for the groundwater remediation in December 2002. EPA and DEQ approved the RDRA and issued an Explanation of Significant Differences (ESD) in June 2003 (EPA 2003). A second ESD (EPA 2007) was issued in June 2007 modifying and clarifying certain aspects of the remedy.

KUC has completed construction of remedy components and now operates under an Operations, Maintenance, and Replacement (OM&R) Plan for South Facilities Groundwater (Version 2, approved April 2009). This plan will be updated from time to time as needed. A requirement of the OM&R Plan is preparation and submittal of annual reports on remedial activities and remedial progress. This report describes remedial activities and results for calendar year 2009 along with comparative changes from previous years.

Groundwater contamination at the South Facilities, referred to as the Zone A Plume, is located immediately down gradient of the old Bingham Reservoir and Bingham Canyon Mine waste rock piles. The plume consists of an acidic core area with low pH and elevated metals surrounded by a partially to fully neutralized zone of elevated sulfate groundwater.

The technical components of the selected South Facilities groundwater remedy include:

- Maintaining source control measures,
- Containing the sulfate plume in Zone A through extraction from barrier wells at the leading edge of the contamination,
- Remediating of the Zone A plume through extraction of heavily contaminated waters from the acidic core of the plume,
- Treating extracted water by reverse osmosis (RO) technology for barrier well water, and by neutralization of acid well water in the tailings pipeline, and
- Monitoring and reporting progress.



## 2. Remedial Operations

### 2.1 Groundwater Remediation System

KUC has completed construction of groundwater extraction and treatment systems necessary to implement the remedy. Components of this system are:

- A barrier well extraction system consisting of three wells, B2G1193, BFG1200, and LTG1147, and conveyance lines to deliver water to an RO treatment plant.
- A reverse osmosis treatment plant capable of producing 3,500 acre feet of drinking water per year using feed water from the barrier wells.
- An acidic groundwater extraction system comprised of three wells, ECG1146, BSG1201 and BSG2784, and conveyance to the beginning of the tailings pipeline at the Copperton Concentrator.
- An acidic water treatment system which relies on operating KUC milling facilities, specifically a) the tailings pipeline, which serves as a 17-mile plug-type treatment reactor; b) the Copperton Concentrator lime plant, which has the ability to add hydrated lime directly to the tailings line as needed; and c) the North Tailings Impoundment, which provides a repository for non-hazardous solid treatment residuals within a much larger mass of tailings.

### 2.2 Extraction and Treatment

Annual extractions for 2005 through 2009 from wells in Zone A are reported in Table 2-1 and shown on Figures 2-1 and 2-2. The 2009 average daily pumping rates for each of the barrier and acid wells are plotted on Figures 2-3 and 2-4, respectively.

**Table 2-1 Annual Zone A Groundwater Extraction 2005-2009 (ac-ft)**

	2005	2006	2007	2008	2009
<i>Barrier Well Extraction</i>					
B2G1193	2093	2188	2225	2464	2268
BFG1200	1080	2244	2353	2464	2164
LTG1147	292	374	307	30	896
<i>Total</i>	<i>3465</i>	<i>4806</i>	<i>4885</i>	<i>4958</i>	<i>5328</i>
<i>Acid Well Extraction</i>					
ECG1146	1527	1495	1419	947	665
BSG1201	1292	1300	869	927	910
BSG2784	0	0	1	706	171
<i>Total</i>	<i>2819</i>	<i>2795</i>	<i>2289</i>	<i>2580</i>	<i>1746</i>



Total extraction from barrier wells B2G1193 and BFG1200 was lower in 2009 than in 2008, while production from LTG1147 was notably higher, offsetting lower production from B2G1193 and BFG1200. All three wells were operated more than 95% of the year (Figure 2-3). On Figure 2-3b, a steadily decreasing production rate from BFG1200 is apparent beginning mid September 2009. Production rate was constrained by decreasing well efficiency, which KUC attributes to mineral build up in the well casing and gravel pack. KUC took this well out of service in early 2010 for rehabilitation, and will report on that effort in the next annual report.

Acidic water extraction well ECG1146 operated approximately 48% of 2009 (Figure 2-4a). This well did not operate during the late spring and early fall due to two failed motors and operational constraints limiting the flow rate of acidic water that could be treated in the tailings system.

BSG1201 operated about 93% of 2009 (Figure 2-4b). Well BSG2784 operated about 17% of 2009 (Figure 2-4c) also because of motor problems.

Electrical monitoring was performed at all three acid water extraction wells in the third and four quarters of 2009 to assess the quality of the power supply and its potential impact on motor reliability. In order to increase reliability and minimize downtime, the power supply infrastructure for all three wells is being upgraded in 2010 to improve the power quality delivered to the motors.

All groundwater extracted from the acidic water extraction wells was conveyed to the KUC tailings line at Box NP-5 where it was treated in the tailings line.

KUC's groundwater extractions removed 41,091 tons of sulfate in 2009. Since 1997, KUC has removed over 611,000 tons of sulfate from the principal alluvial aquifer in the South West Jordan Valley.

Barrier Well water from B2G1193 and BFG1200 along with LTG1147 was routed to the RO Plant during 2009 and KUC delivered the produced drinking water to the Jordan Valley Water Conservancy District. Concentrate from the plant was routed to the KUC tailings pipeline. Feed water volumes are indicated in Table 2-2.

**Table 2-2 Annual RO Plant Feed Water Volumes (ac-ft)**

	2005	2006	2007	2008	2009
RO Treatment	1549	4806	4762	4928	5039

Figure 2-1 Acid Well Extraction 2005-2009

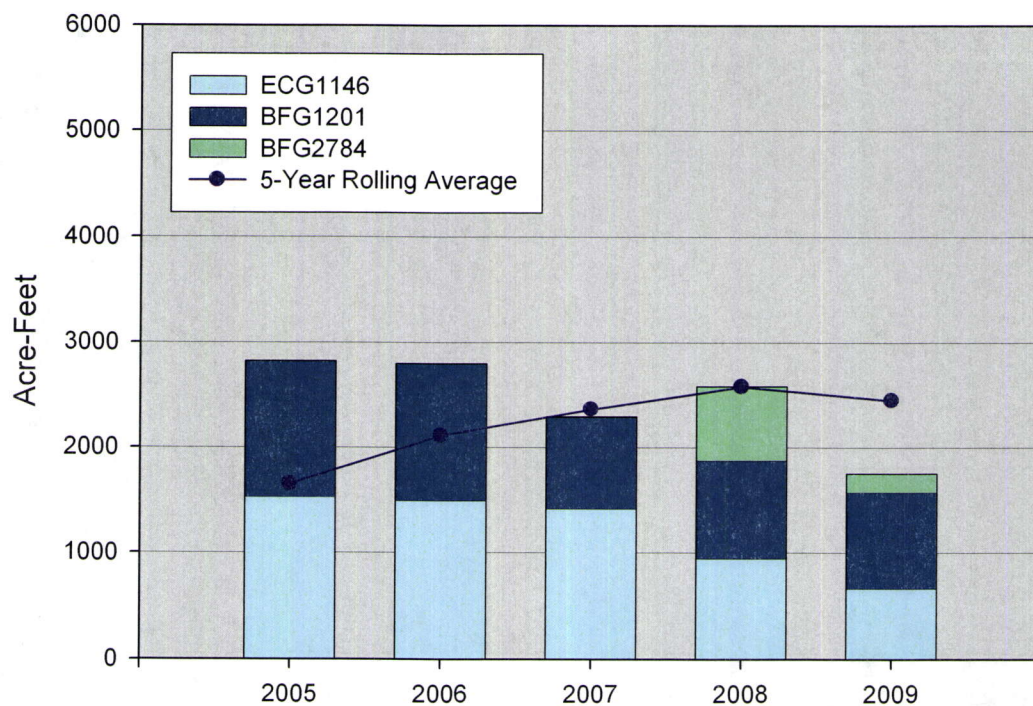
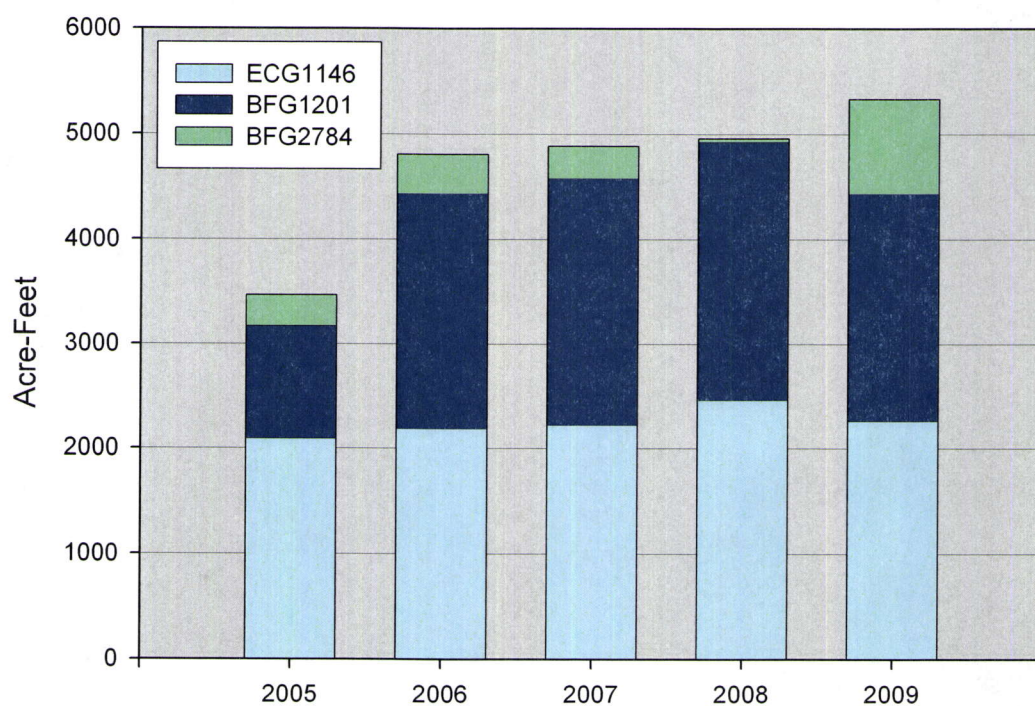
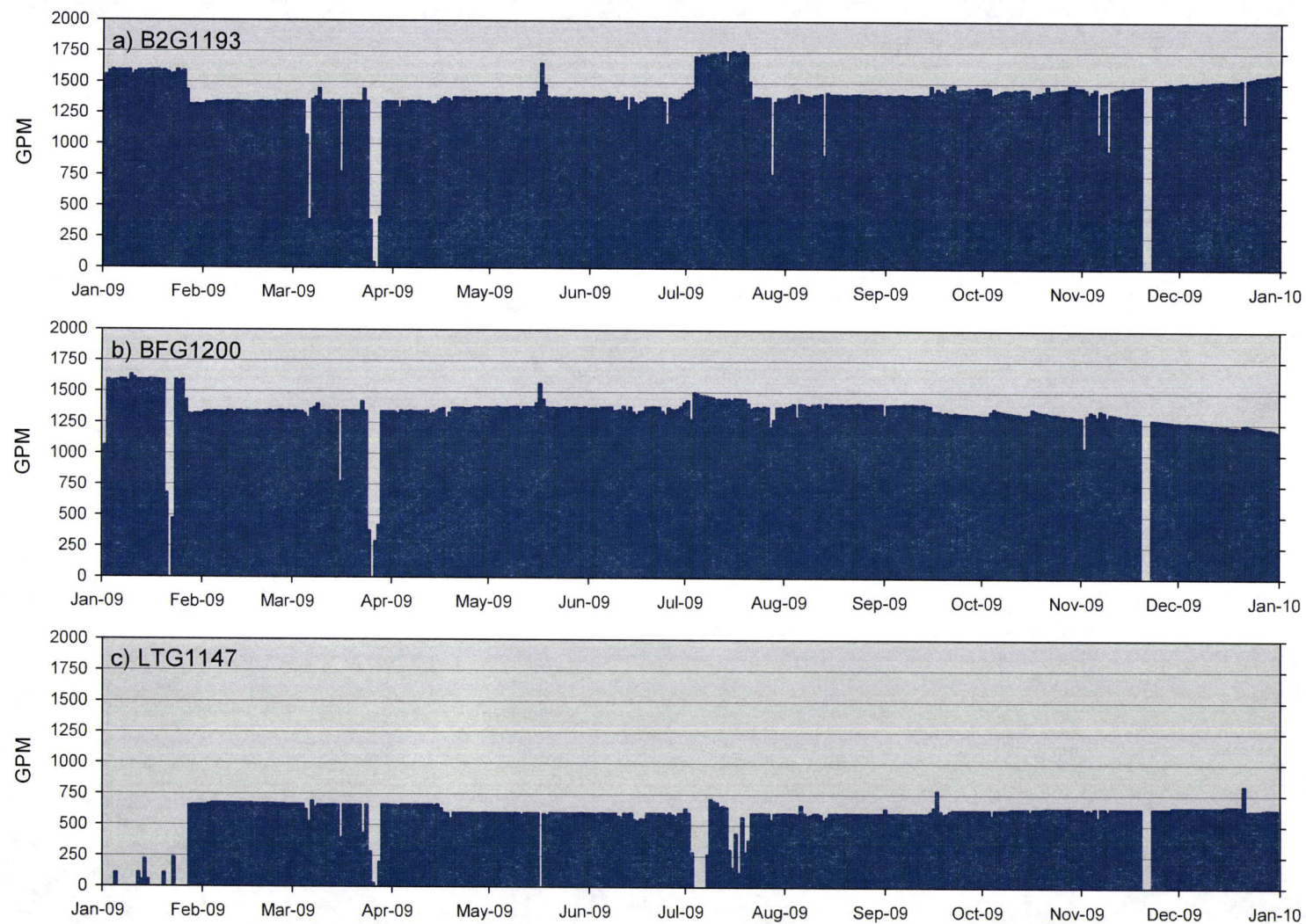


Figure 2-2 Barrier Well Extraction 2005-2009



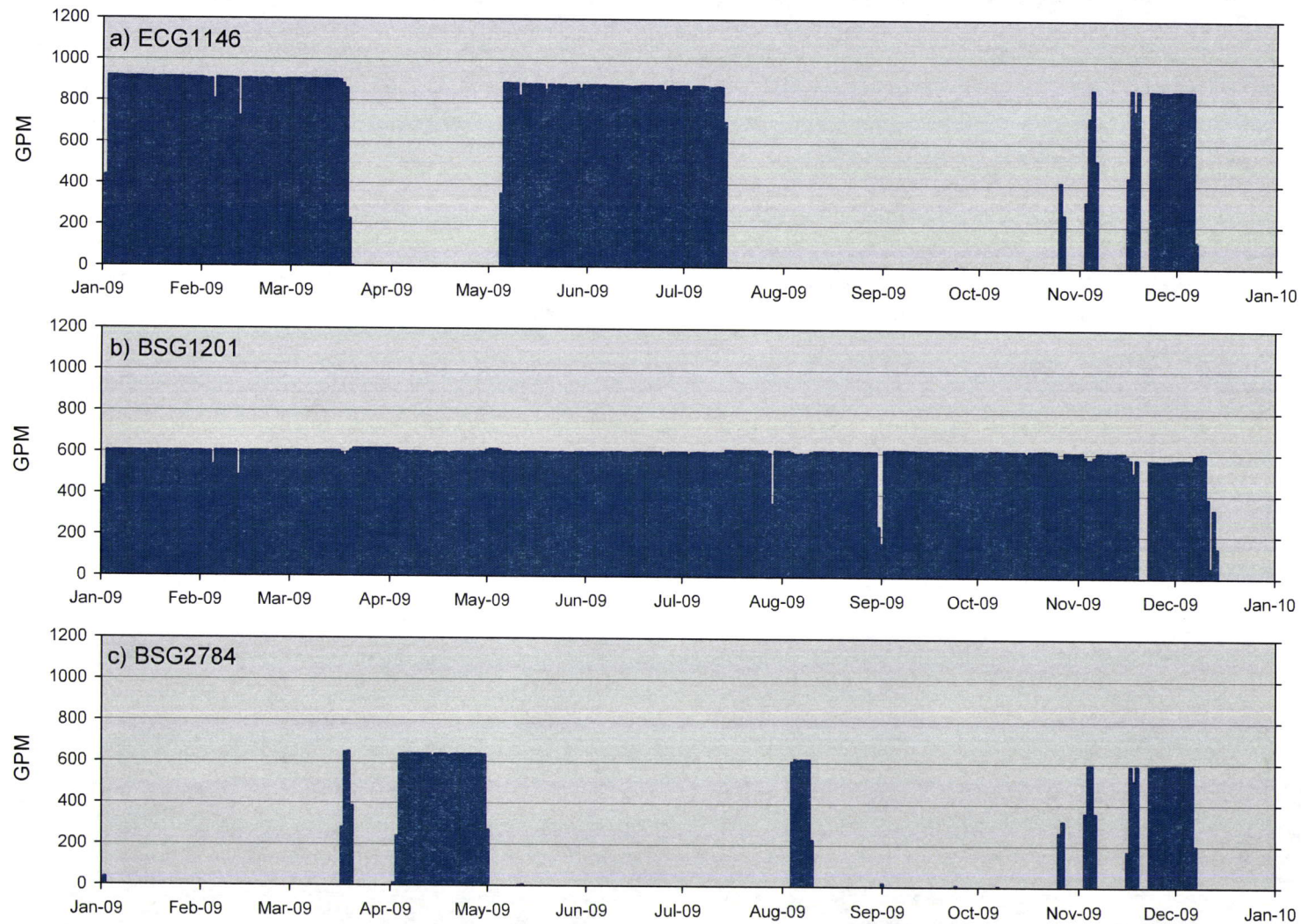


**Figure 2-3 Average Daily Pumping Rates for Barrier Wells**





**Figure 2-4 Average Daily Pumping Rates for Acid Wells**





### 3. Compliance with Performance Standards and Monitoring Requirements

#### 3.1 Performance Standards

Performance standards for operation and maintenance of the remedy are described in the 2007 ESD and include:

- Extract a minimum of 1,200 acre-feet per year from the core of the acid plume on a five-year rolling average.
- Maintain groundwater sulfate concentration in a network of compliance wells, listed in the OM&R Plan, at or below 1,500 mg/l.

The OM&R Plan specifies required monitoring including sampling frequency, timing, and parameters for compliance and extraction wells.

Performance in 2009 is compared to these performance standards and requirements below. KUC reports separately to the State Trustee for Natural Resources on operations at the RO Plant in compliance with the Natural Resource Damage settlement and implementing project agreements.

#### 3.2 Extraction Rate

Average acid water extraction for the 5-year period 2005 to 2009 was 2,446 acre feet (Table 3-1). Thus, KUC complied with the minimum annual extraction performance standard of 1,200 acre-feet of acid plume water on a 5-year rolling average.

**Table 3-1 Five-year average extraction from the acid plume (acre-feet)**

	2005	2006	2007	2008	2009	5-Year Average
Extraction	2819	2795	2289	2580	1746	2246

#### 3.3 Required Monitoring

The OM&R Plan specifies required monitoring frequency and timing for compliance wells, which is dependent on sulfate concentrations as shown in Table 3-2.

Extraction wells are to be sampled semi-annually in the first and third quarters.

Required monitoring parameters are indicated in Table 3-3.

**Table 3-2 Compliance Well Sampling Frequency and Timing**

Sulfate (mg/l)	Frequency	Timing*
<1,000	Annually	3rd Quarter
1,000-1,250	Semi-annually	1st and 3rd Quarters
>1,250	Quarterly	Each Quarter

\*calendar-year quarters

**Table 3-3 Compliance and Extraction Well Monitoring Parameters**

pH
Arsenic (D)
Barium (D)
Cadmium (D)
Copper (D)
Fluoride
Lead (D)
Selenium (D)
Nickel (D)
Sulfate

\*(D) means dissolved

All compliance monitoring wells had sulfate concentrations less 1,000 mg/l and all were sampled in 2009 within the third quarter, at a minimum. Extraction wells were monitored during first and third quarter 2009, at a minimum.

Required monitoring parameters were gathered for compliance and extraction well sampling in 2009, except for fluoride, barium and nickel at HMG1134B and nickel at P192B and W189. KUC inadvertently omitted analysis of these analytes

### 3.4 Plume Containment

The compliance well network for 2009 is shown on Figure 3-1. One (WJG1169A) of the ten compliance monitoring wells went dry in late 2008 and one additional monitoring wells (WJG1154A) is anticipated to go dry in 2010. Each of the compliance wells that is or soon will be dry is part of a nested site, and KUC had revised the OM&R Plan to designate the next completion below each dry well as the compliance well. EPA and UDEQ approved the revised OM&R Plan in April 2009. Sulfate concentrations in the third quarter of 2009 are listed in Table 3-4; for comparison, third-quarter measurements from 2008 are also listed.

No compliance wells or replacement compliance wells exceeded the sulfate compliance limit of 1,500 mg/l in 2009, and the highest concentration measured was 667 mg/l. No large changes in sulfate concentration occurred in the compliance wells between 2008 and 2009. Sulfate concentrations decreased by more than 10% in three wells and increased by more than 10% in one well. The maximum sulfate increase was 12%.

There does not appear to be any increase in sulfate concentrations in compliance wells that would suggest the potential for future non-compliance with the performance standard.

**Table 3-4 Compliance Monitoring Well Sulfate (mg/l) Measurements during Third Quarter**

<b>Well ID</b>	<b>2008</b>	<b>2009</b>
COG1178A	284	306
WJG1169A	488	dry
WJG1169B	455	463
WJG1154A	352	292
WJG1154B	329	360
W189	105	93
P192B	136	87
P194B	41	41
EPG1165A	157	176
BSG1135B	75	70
HMG1123A	663	667
HMG1126B	386	390







## 4. Remedial Progress

Analysis of 2009 groundwater monitoring data, especially as shown on the time-series plots included in this report, indicates that the remedial extraction program is continuing to achieve reduction in contaminant levels.

All water chemistry data collected during 2009 is reported in Appendix A; results from 2008 are also included in Appendix A. Samples were analyzed at Kennecott Environmental Laboratory (KEL), a State of Utah certified analytical laboratory.

For all South Facilities Groundwater sampling, KUC follows the Groundwater Monitoring and Characterization Plan (GCMP; KUC 2005a) and its associated Standard Operating Procedures (SOPs; KUC 2005b), and Quality Assurance Project Plan (QAPP; KUC 2005c). KUC submits quarterly Quality Assurance Reports and an annual GCMP summary to the Division of Water Quality. These reports report data and discuss quality assurance for the data utilized below to assess remedial progress.

### 4.1 Sulfate

The distribution of sulfate in 2009 in Zone A is represented on Figure 4-1 as contoured sulfate concentrations. In monitoring wells with multiple completions at different depths, the well with the highest sulfate concentration was used to generate the contours. The most recent sampling event during 2009 (or the most recent analyses within the past five years if no 2009 data were available) was used. Changes in contoured sulfate concentrations from 2008 to 2009 are highlighted on Figure 4-2. Figure 4-3 represents the sulfate concentration changes from 2006 through 2009. The time-period of 2006 through 2009 was selected because in 2006 additional plume delineation drilling was completed.

Over most of the area, the sulfate isoconcentrations lines indicate a contraction in the plume footprint between 2008 and 2009. Generally, the sulfate isoconcentration lines for 1500 mg/l and 5,000 mg/l located on the north and east side of the plume area have moved south and west respectively (Figure 4-2), indicating a decrease in the plume footprint. The 15,000 mg/l and 20,000 mg/l isocontours in the ECG1146 area have also generally contracted. Slight increases, for the same time period, in the 10,000 mg/l, 15,000 mg/l and 20,000 mg/l isocontours have occurred east of BSG2784, likely due to the reduced pumping at BSG2784 in 2009.

From 2006 through 2009, the same general contraction of sulfate isocontours is apparent, but with larger changes (Figure 4-3). The large reduction in the footprint underlain by sulfate concentrations in excess of 10,000 and 15,000 mg/L is particularly significant. The main exception to these reductions is on the south side of the plume area where the 1,500 mg/l and 5,000 mg/l isocontours have advanced to the south, likely due to pumping at barrier extraction well LTG1147.

Time-series plots of sulfate concentration for selected monitoring wells are presented and discussed below.

#### **4.1.1 Plume Interior**

The plume interior includes areas with groundwater sulfate concentrations greater than 5,000 mg/l.

Most of the changes in sulfate concentration are due to pumping or lack of pumping at ECG1146, BSG1201 and BSG2784. When consistent pumping occurs, surrounding monitoring wells generally show decreasing sulfate concentrations. If partial-year pumping occurs, decreasing trends may be less pronounced, trends level off or trends show increasing sulfate concentrations. Another factor that influences trends includes when the sample was collected with respect to pumping, the distance of the monitoring well from the respective pumping well, and the degree of hydraulic communication between the hydrostratigraphic horizons of a monitor well and the horizons screened in the pumping well.

##### *Zone A Source Area*

Comparison of the isoconcentration contours from 2009 with those from 2008 indicates minor changes in the western acid plume area at monitoring well site SRG946 near the Small Bingham Reservoir. Two samples were collected in 2009 and the first sample showed increasing sulfate concentrations (from 16,800 mg/l in 2008 to 18,600 mg/l in 2009) and second sample showed a decrease (17,700 mg/l). Although the 2009 sulfate results from SRG946 are slightly higher than the last sample of 2008, the results are consistent with the overall downward trend apparent on Figure 4-4. However, the rate of decrease appears to be lower between 2005 and 2009 than during the proceeding period. It is likely that sulfate and other contaminant concentrations in this area will reach an equilibrium as contaminants are slowly rinsed from sediments and released over time. Pumping at ECG1146 appears to have little effect on water table at this site but due to the pumping at ECG1146, the water gradient steepens eastward which increases the potential for water to move towards the pumping well.

Monitoring wells ECG1115 A, B, and C are located 1,500 feet upgradient from extraction well ECG1146 along the apparent migration pathway of the Zone A plume. In 2009, sulfate concentrations in ECG1115 A and B decreased (Figure 4-5), while sulfate in ECG1115C increased from 36,900 mg/l in 2008 to 41,700 mg/l. Sulfate concentrations in ECG1115A have been greater than 30,000 mg/l since at least 1996 and now appear to be on a downward trend for the past two years with the 2009 concentration at 28,700 mg/l (Figure 4-5). Sulfate concentrations in ECG1115 B and C have shown marked increases since initiation of pumping at ECG1146, however the last three years ECG1115B shows a decreasing sulfate trend. The very high sulfate concentration in ECG1115C is similar in concentration as compared to the early sampling data from ECG1115A. These overall responses are attributed to induction of horizontal contaminant migration from the Zone A source area or possible induction of vertical migration between horizons. It is also possible that vertical migration is



occurring due in the borehole itself. ECG1115 was drilled using casing driven techniques so that water quality could be collected during drilling. Even through the proper completion materials were placed to seal the annular space, it is possible that the upper higher sulfate concentration has moved downward in the outer annular space.

#### *Acid Extraction Well ECG1146 Area*

There was a discernable aquifer response, both in terms of sulfate concentration and water level, to partial year pumping at extraction well ECG1146 (Section 2.2). Examination of the time series concentration plots (Figure 4-6 to Figure 4-10) indicates that sulfate concentrations at most wells within the ECG1146 area either decreased at a slower rate than previous years or increased slightly.

Sulfate concentrations in ECG1146 averaged 19,350 mg/l in 2008 and 18,200 mg/L in 2009 (Figure 4-6). A lower rate of sulfate concentration decline in 2008 and 2009 compared to prior years is apparent. Because all results for 2009 were less than 20,000 mg/l, KUC plotted the area of greater than 20,000 mg/l sulfate slightly smaller and west of ECG1146 (Figure 4-2).

Notably, sulfate concentrations in ECG1124B (Figure 4-6), located adjacent to extraction well ECG1146, decreased from 1,480 mg/l in 2008 to 403 mg/l in 2009.

In ECG1145A, located south of well ECG1146, sulfate decreased from 9,180 mg/l in 2008 to 7,190 mg/l in 2009 (Figure 4-7); however, the rate of decrease was lower than in prior years. Partial-year pumping and the timing of sample collection would explain the sulfate differences over time. The sulfate concentrations in the ECG1145B and C horizons also continued to decline.

In ECG1144A (Figure 4-8), located approximately 500 feet northeast of ECG1146, sulfate concentrations decreased from 7,120 mg/l in 2008 to 6,530 mg/l in 2009, which is a lower rate of decrease compared to previous years. During the same period, ECG1144B increased from 5,490 mg/l to 7,050 mg/l. The changes from previous trends, especially the increase in sulfate in ECG1144B, are certainly due to partial-year pumping at extraction well ECG1146.

The sulfate concentration in monitoring well ECG1128A (Figure 4-9) increased from 5,210 mg/l in 2008 to 6,310 mg/l in 2009, ending a seven-year trend of steadily decreasing sulfate concentrations. This result is certainly due to partial-year pumping at ECG1146 and timing of sample collection. The increasing sulfate concentration in this well is reflected in expansion of the 5,000 mg/l contours on the southwest sector of the sulfate plume.

In ECG1118A, located approximately 1,800 feet east-northeast of ECG1146, sulfate concentration decreased from 9,730 mg/l in 2008 to 9,050 mg/l in 2009 (Figure 4-10). The rate of decrease in 2008 and 2009 was less than previous years, which was certainly due to partial-year extraction at ECG1146.

*Acid Extraction Well BSG1201 Area*

Acid extraction well BSG1201 operated for most of year in 2009. Sulfate in BSG1201 did not change notably from the previous year (Figure 4-11). At the adjacent monitoring wells, BSG1177A and B (Figure 4-11), the sulfate concentration decreased in 2009 at a rate consistent with the previous five years. That the rate of sulfate decline in 2008 and 2009 is consistent with the period from 2004 through 2007 suggests that the lower pumping rate from this well implemented in 2007 remains sufficient to effectively promote mass removal and aquifer remediation.

Sulfate concentration in BSG1119B (Figure 4-12), located at the leading edge of the low pH plume did not change notably from 2008 to 2009.

*Acid Extraction Well BSG2784 Area*

At acid extraction well BSG2784, sulfate decreased (Figure 4-13) from an average of 12,200 mg/l in 2008 to an average of 11,550 mg/l in 2009. Since BSG2784 was pumped less than two months during 2009, sulfate in BSG2782A (Figure 4-13), located 150 feet west and upgradient of extraction well BSG2784, increased from 19,700 mg/l at end of year 2008 to 24,700 mg/l at end of year 2009. For the same time, BSG2782C decreased from 30,900 mg/l to 24,100 mg/l. In the less contaminated and lower permeability horizon monitored by BSG2782B, sulfate decreased from 6,850 mg/l in late 2008 to 4,320 mg/l in late 2009. Because of the intermittent pumping at BSG2784, it is difficult to separate pumping-induced changes from water-table gradient driven plume migration.

Despite minimal pumping at BSG2784, sulfate concentrations in monitoring wells BSG1179 B and C and P241B, located approximately 1,400 feet west of BSG2784, decreased in 2009, while BSG1179A only showed a slight increase (Figure 4-14). The highest concentration of sulfate at this location occurs in BSG1179C, which decreased from 18,300 mg/l in 2008 to 16,200 mg/l in 2009. Likewise, approximately 1,700 feet southeast of acid extraction well BSG2784 sulfate concentrations in BSG2783B decreased from an average of 16,800 mg/l in 2008 to an average of 14,300 mg/l in 2009 (Figure 4-16).

At monitoring well BSG2777A, located 1,200 feet east and downgradient of extraction well BSG2784, sulfate concentrations increased from 18,700 mg/l to 21,300 mg/l. Partial year pumping at BSG2784 likely caused the increase along with the ground water gradient (Figure 4-15). With the increase in sulfate, the 20,000 mg/l sulfate contour moved slightly east (Figure 4-2).

#### **4.1.2 KUC Deep Well Field**

The KUC deep well field area includes barrier extraction wells B2G1193 and BFG1200 and the monitoring wells located on the northeast margin of the plume. Sulfate concentrations in the extraction wells held essentially steady during 2009. Sulfate concentrations in monitoring wells located close to extraction well B2G1193 were also essentially steady in 2009, while other monitoring wells in the well field generally held steady or decreased.



*Deep Well B2G1193 Area*

B2G1157A, B, and C are located immediately adjacent to barrier extraction well B2G1193. B2G1157A is dry. Sulfate in ECG1157B continued on an overall increasing trend, but appears to be increasing at a slower rate (Figure 4-17). The average sulfate concentration increased from 6,449 mg/l in 2008 to 6,655 in 2009. The sulfate concentration in water extracted from B2G1193 slightly increased from an average of 1,920 mg/l in 2008 to an average of 1,962 mg/l in 2009. Sulfate concentrations in B2G1157C decreased from an average of 424 mg/l in 2008 to 408 mg/l in 2009. The changes at B2G1157 reflect the consequences of pumping at B2G1193, which is drawing water from the interior of the plume as well as the margin. That the sulfate concentration in extraction well B2G1193 has only slightly increased despite higher sulfate concentrations in B2G1157B suggests that the horizon monitored by B2G1157B does not contribute significantly to the overall production from B2G1193.

Monitoring wells BFG1156B, C, D, and E are located approximately half the distance between extraction wells BFG1200 and B2G1193 and are located at the northern leading edge of the 1,500 mg/l sulfate contour. Sulfate concentrations in BFG1156B and BFG1156C were approximately the same as in 2008; sulfate in BFG1156B had been steadily decreasing prior to 2009. Sulfate concentrations in BFG1156D increased slightly from 1,110 mg/l in 2008 to 1,230 mg/l in 2009 (Figure 4-18), likely due to lateral movement of higher sulfate water from the south and west and from vertical movement of higher sulfate water. BFG1156E, last sampled in 1997, was sampled in 2009, and had a higher concentration of sulfate than in 1997, likely for reasons similar to the increase in BFG1156D.

*Deep Well BFG1200 Area*

Sulfate concentrations over time for extraction well BFG1200 are shown Figure 4-19 along with monitoring well BFG1155A, B, C, D, E, and F. BFG1155A and B are dry. There are seasonal fluctuations in sulfate concentrations in this extraction well. The sulfate concentration in BFG1200 decreased slightly from an average sulfate concentration of 788 mg/l in 2008 to 726 mg/l in 2009. The overall sulfate trend for BFG1200 has been downward since 2006. BFG1155C was last sampled in 2003 and had 733 mg/l compared with 728 mg/l in 2009, while BFG1155D had 327 mg/l in 2003 and 509 mg/l in 2009.

The most recent sample from BFG1155C has a strong affinity for water extracted from BFG1200 (Figure 4-19). This suggests that the horizon monitored by BFG1155C is the contributing the majority of the production. It may also suggest that the sulfate decline observed in BFG1193 is related to decreasing contribution from higher, more contaminated horizons as the water table as dropped. Over time, KUC thus expects continued improvement in BFG1201 water quality.

In well BFG1195A (Figure 4-20), the sulfate concentration decreased from 1,660 mg/l in 2008 to 1,490 mg/l in 2009, encouragingly reversing an eight-year trend of steadily increasing sulfate concentration. BFG1195B decreased from 1,580 mg/l in 2008 to 1,370 mg/l in 2009, the lowest measured sulfate concentration since 2001. It

is likely that the extraction from barrier wells BFG1200 and B2G1193 is causing cleaner water to move vertically and/or laterally to the monitoring wells.

Time-series plots for other monitoring wells in the deep well field area where sulfate concentrations were measured in 2009 are presented here. In P277, the sulfate concentration decreased notably in 2009 (Figure 4-21). At P277, it is noteworthy that the sulfate concentration dropped from 1,640 mg/l in 2008 to 1,360 mg/l in 2009. This change caused the 1,500 mg/l sulfate isocontour line to move inward (Figure 4-2). Sulfate in B2G1194 A and B continued a sustained downward trend (Figure 4-22). A slight increase was measured in B3G1197A, while B3G1197B decreased slightly (Figure 4-23). For B3G1197A, the increase from 237 mg/l in 2008 to 298 mg/l in 2009 likely is related to vertical migration of higher sulfate near the water table. It also is likely that this well will go dry in 2010-2111.

#### **4.1.3 Southeast Margin**

Sampling in 2009 indicates an overall continued increase in sulfate in P241C (Figure 4-24). A slight decrease was observed in BSG1148A (Figure 4-25). Sulfate at BSG1148B had not been measured since 1996 (see footnote on Figure 4-25). The measurement in 2009 indicated a significant increase in BSG1148B since 1996. It is likely that the higher sulfate concentration in the BSG1148A level is moving downward to the BSG1148B level. There were no notable changes at BSG1133 B (Figure 4-26) or BSG1132A and B (Figure 4-27). Responses to pumping at extraction well BSG2784 are expected in these areas with time.

#### **4.1.4 West Jordan Well Field**

KUC monitors water quality and water levels in and adjacent to the West Jordan municipal well field, which includes wells W363 and W387, shown on Figure 4-1, and W420, not shown. A fourth well, W361, was abandoned by West Jordan in the mid-2000s due to land development activities. Heavy extraction from these four wells in the 1990s caused migration of elevated-sulfate groundwater toward this area and well W363 saw increasing sulfate through the late 1990s (Figure 4-28).

Sulfate concentrations at W363 have declined since 1999 and correspond to reduced annual extraction by West Jordan and increased extraction by KUC. During 1999, W363 had its highest sulfate concentration of 188 mg/l, and in 2009, the average concentration was 113 mg/l, a slight decrease from 125 mg/l in 2008. Well W363 is located approximately 6,700 feet northeast of KUC's barrier well BFG1200. Well W387, located 2,700 feet west of W363, was not sampled in 2009 but has had relatively level sulfate concentration in the 50 mg/l range. The northern-most West Jordan well (W420) was sampled in 2009 and had 37 mg/l sulfate. Both W387 and W420 are not within the sulfate plume pathway.

Monitoring wells located between the leading edge of the sulfate plume and the West Jordan Well field showed generally steady to slightly increasing sulfate concentrations in 2009. WJG1154A, located 3,400 feet southeast of W363, also saw elevated concentrations through the late 1990s and has shown fairly consistent



sulfate concentrations since. The average concentration for WJG1154A in 2009 decreased from 349 mg/l in 2008 to 320 mg/l with seasonal highs and lows (Figure 4-29). Sulfate concentrations in well WJG1154B have increased to 356 mg/l in 2009 from a high of 329 mg/l in 2008. The increase in sulfate at WJG1154B is likely due to vertical movement of water with higher sulfate concentration in the WJG1154A horizon moving downward as the water table declines.

Sulfate concentrations in well WJG1170B (WJG1170A is dry) increased to 339 mg/l in 2009 compared with 260 mg/l in 2008 (Figure 4-30). The water has continued to decline in this general area and it appears that the poorer quality water in the upper portion of the aquifer is moving downward from the WJG1170A horizon into the WJG1170B horizon. WJG1171A has an increasing sulfate trend over time but an actual decrease from 177 mg/l in 2008 to 172 mg/l in 2009 (Figure 4-31). WJG1171B continues to have sulfate concentrations less than 60 mg/l.

## 4.2 Aluminum

In general, aluminum concentrations continued to decrease in 2009. This constituent is the primary contributor to mineral acidity and influences treatment strategies for acid plume water.

The distribution of aluminum in groundwater in 2009 is shown on Figure 4-32. The aluminum concentration contours for 2009 on this figure were drawn in a similar manner as the sulfate contour map (Section 4.1; Figure 4-1). Changes in aluminum from 2008 to 2009 are highlighted on Figure 4-33. Decreases in aluminum concentration in the Zone A plume generally mimic the decreases in sulfate concentrations. As with sulfate, the decrease in aluminum is attributed primarily to mass removal due to groundwater extraction.

### *Zone A Source Area*

In the western-most portion of the low pH plume, adjacent to the Small Bingham Reservoir, the aluminum concentration at SRG946 remained just below 1,000 mg/l for a third consecutive year (Figure 4-34). This is reflected as a complete contraction of the 1,000 mg/l aluminum isocontour in this area (Figure 4-33). As noted above in the discussion of sulfate in SRG946 (Section 4.1.1), due to the remobilization of precipitated minerals in the immediate Zone A source area, it is likely that aluminum concentrations will continue to be elevated over time in this area.

### *Acid Extraction Well ECG1146 Area*

In 2009, the main area of aluminum concentrations greater than 1,500 mg/l continues to be in the core of the low pH plume around monitoring well ECG1115A, which is northwest and up gradient of extraction well ECG1146. With continued pumping from acid extraction well ECG1146, the area containing greater than 1,500 mg/l aluminum continues to decrease slightly in size. ECG1115A, which contained 1,910 mg/l in 2008 increased to 1,950 mg/l in 2009 (Figure 4-35). During the same period, ECG1115C increased from 1,440 mg/l to 1,680 mg/l and ECG1115B increased



from 263 mg/l to 372 mg/l. Aluminum concentrations in ECG1115 B and C have shown marked increases since initiation of pumping at ECG1146. These responses are attributed to induction of horizontal contaminant migration from the western portion of the Zone A source area, slow release of contaminants from lower-permeability horizons, and/or possible induction of vertical migration from shallower to deeper horizons through the outer borehole wall.

Aluminum concentrations in ECG1146 has decreased with an average concentration of 986 mg/l in 2008 and 908 mg/l in 2009 (Figure 4-36).

Aluminum increased at ECG1128A from 131 mg/l in 2008 to 157 mg/l in 2009 (Figure 4-37). The increase can be attributed to partial-year extraction at acid extraction well ECG1146.

At ECG1118A, aluminum decreased from 503 mg/l in 2008 to 422 mg/l in 2009 (Figure 4-38). The decrease changes the 500 mg/l isocontour as shown on Figure 4-33. Partial-year extraction at ECG1146 appears to have also influenced the aluminum concentration for this area compared with earlier years on the time series curve.

#### *Acid Extraction Wells BSG1201 and BSG2784 Area*

Between 2008 and 2009, aluminum concentrations in the BSG1201 and BSG2784 area generally remained constant. This is likely due to the partial-year pumping (less than 2 months) at BSG2784. Figure 4-33 does not show any significant changes in aluminum concentration to the west and southwest of BSG2784. Although there are differences between the 2008 and 2009 aluminum contour maps these changes result from an oversight on the 2008 contour map, not from actual changes in the plume geometry. In 2008 aluminum data for BSG1179C was inadvertently excluded from the contouring. Well BSG1179C actually had aluminum concentrations of 1030 mg/L in both 2008 and 2009. Average aluminum concentrations decreased at acid extraction well BSG1201 from 371 mg/l in 2008 to 362 mg/l in 2009 (Figure 4-39) and at acid extraction well BSG2784, decreased from an average of 438 mg/l in 2008 to 417 mg/l in 2009 (Figure 4-40). If continued pumping at both wells can be maintained, it would appear that continued decreases of aluminum concentration for this eastern portion of the low pH plume area will follow.

Aluminum concentrations at monitoring well BSG2782A, located 150 feet west of acid extraction well BSG2784, increased to pre-extraction levels of 1,540 mg/l in 2009 compared to 820 mg/l by end of year in 2008 (Figure 4-40). This is again likely due to the reduced pumping from the adjacent extraction well in 2009. In the less contaminated and lower permeability horizon monitored by BSG2782B, aluminum did not show a notable response to pumping in 2009. In BSG2782C, aluminum decreased from 741 mg/l at the end 2008 to 595 mg/l in late 2009.

On the leading edge of the low pH plume, aluminum in well BSG1119B decreased to 52 mg/l in 2009 from 53 mg/l in 2008 (Figure 4-41). BSG2777A increased from an average of 116 mg/l in 2008 to 124 mg/l in 2009 (Figure 4-42).

### 4.3 Arsenic, Cadmium, and Copper

In general, the concentrations of arsenic, cadmium, and copper have been declining in the acid plume due to pumping. These metalloids and metals are prevalent where groundwater has a pH less than or equal to 4.5. Changes are also monitored closely at the leading edge of the pH 4.5 plume. Extraction and monitoring wells located in neutral pH water generally have less than or near detection limit concentrations of arsenic, cadmium, and copper.

Comparisons of arsenic, cadmium, and copper for 2008 and 2009 are included in Table 4-1 for each of the three acid extraction wells. Most of the changes are relatively small, which is comparable with the aluminum and sulfate concentrations changes noted in 2009.

**Table 4-1 Arsenic, Copper, and Cadmium (mg/l) in Acid Wells**

	ECG1146		BSG1201		BSG2784	
	2008	2009	2008	2009	2008	2009
Arsenic	0.038	0.350	0.019	0.021	0.026	0.024
Cadmium	0.771	0.792	0.643	0.615	0.822	0.782
Copper	66.03	57.57	17.42	16.84	12.69	12.82

At the leading edge of the low pH plume, monitoring wells BSG1119B and BSG2777A show changes (Table 4-2) that would be typical for the reaction boundary of low pH water where the aluminum, arsenic, and copper concentrations are relatively low compared to the core of the low pH plume. BSG1119B shows minor changes for arsenic, cadmium, and copper, while BSG2777A shows slightly increasing arsenic but decreasing cadmium and copper. The influences of pumping at BSG1201 and BSG2784 should cause the metal and metalloid concentrations to hold relative steady and possibly decrease. BSG1119B and BSG2777A are located approximately 2,000 ft and 1200 ft down gradient respectively of extraction wells BSG1201 and BSG2784 and some of the water at the leading edge may move eastward farther into the basin.

**Table 4-2 Arsenic, Copper, and Cadmium (mg/l) in Leading Edge Wells**

	BSG1119B		BSG2777A	
	2008	2009	2008	2009
Arsenic	0.010	0.012	0.031	0.036
Cadmium	0.780	0.744	1.730	1.555
Copper	0.072	0.086	0.151	0.115

### 4.4 pH

Groundwater pH isocontours for 2009 are shown on Figure 4-43. Figure 4-44 indicates changes in contoured pH values from 2008 to 2009. Specific portions of the pH plume are discussed below.

#### 4.4.1 Plume Core

The 2009 data depict two separate areas containing groundwater with an approximate pH of 3.5 or less. These include the area around the Bingham Creek



Reservoirs which contains residual low pH water; and the area surrounding extraction well ECG1146 and extending east to extraction wells BSG1201 and BSG2784.

Monitoring wells in the Bingham Creek Reservoir area containing a pH of around 3.5 or less include LRG912, which had a pH of 3.8 in 2008 and 3.7 in 2009. B1G951 had a pH of 3.3 in 2008 and 3.5 in 2009. SRG946 had a pH of 3.4 in 2008 and 3.5 in 2009. K120, which has not been sampled in more than five years, had a pH of 3.1. Because all four sites are within or adjacent to the footprint of the Large Bingham Reservoir, residual sediments, especially iron hydroxides with sorbed hydrogen ions, will likely continue to cause the pH of groundwater to remain low for many years.

In the area of extraction well ECG1146, five wells had at least one sampling event in 2009 with a pH of 3.5 or less. These wells include ECG1146, ECG1115A and C, ECG1118A and ECG1144A. Many of the wells in the acid plume vary between 3.2 and 3.8 on a year to year basis. Due to these small changes, the map showing pH changes from 2008 to 2009 (Figure 4-44) has relatively large areas that change from less to 3.5 to greater than 3.5. ECG1117A had a pH of 3.2 in 2008 and 3.7 in 2009 and ECG1121A had a pH of 3.3 in 2008 and 3.6 in 2009. These two wells changed a large portion of the 3.5 pH plume area. ECG1118A has had two years with a pH of less than 3.5 and this data point is the only one with less than 3.5 pH between the eastern and western portion of the low pH plume, so the 3.5 contour was drawn to join both areas.

Monitoring well ECG1124B, located adjacent to extraction well ECG1146 and screened at and below the ECG1146 screen interval, shows a pronounced increase in pH during the past several years with a measurement of 4.0 in 2006, 5.4 in 2007, 5.8 in 2008, and 6.2 in 2009. This increase in pH is likely due to cleaner water located near the base of principal alluvial aquifer rising upward into the base of the low pH plume core.

In the area of extraction wells BSG1201 and BSG2784, two monitoring wells (BSG2782A and BSG1179C) had pH measurements of 3.5 or less. Both extraction wells, BSG1201 and BSG2784, show all sampling events for 2009 with a pH above 3.5.

#### **4.4.2 Leading Edge of Plume**

The average pH in well BSG1119B in 2008 was 4.7 and remained the same in 2009. In BSG2777A, the pH increased from an average of 4.3 in 2008 to 4.4 in 2009. Monitoring wells located east of BSG1119B and BSG2777A have neutral or near neutral pH values with no significant changes from 2008 to 2009. The nearest monitoring wells located downgradient of BSG1119B is BSG2779A, B and C. Measurements of pH in all of the wells remained relatively steady from 2008 to 2009. BSG1133A, B, and C are the nearest down gradient wells to BSG2777A and are located approximately 1700 feet east. The pH of BSG1133B was measured at 6.9 to 7.1 in 2008 and 6.9 to 7.3 in 2009.

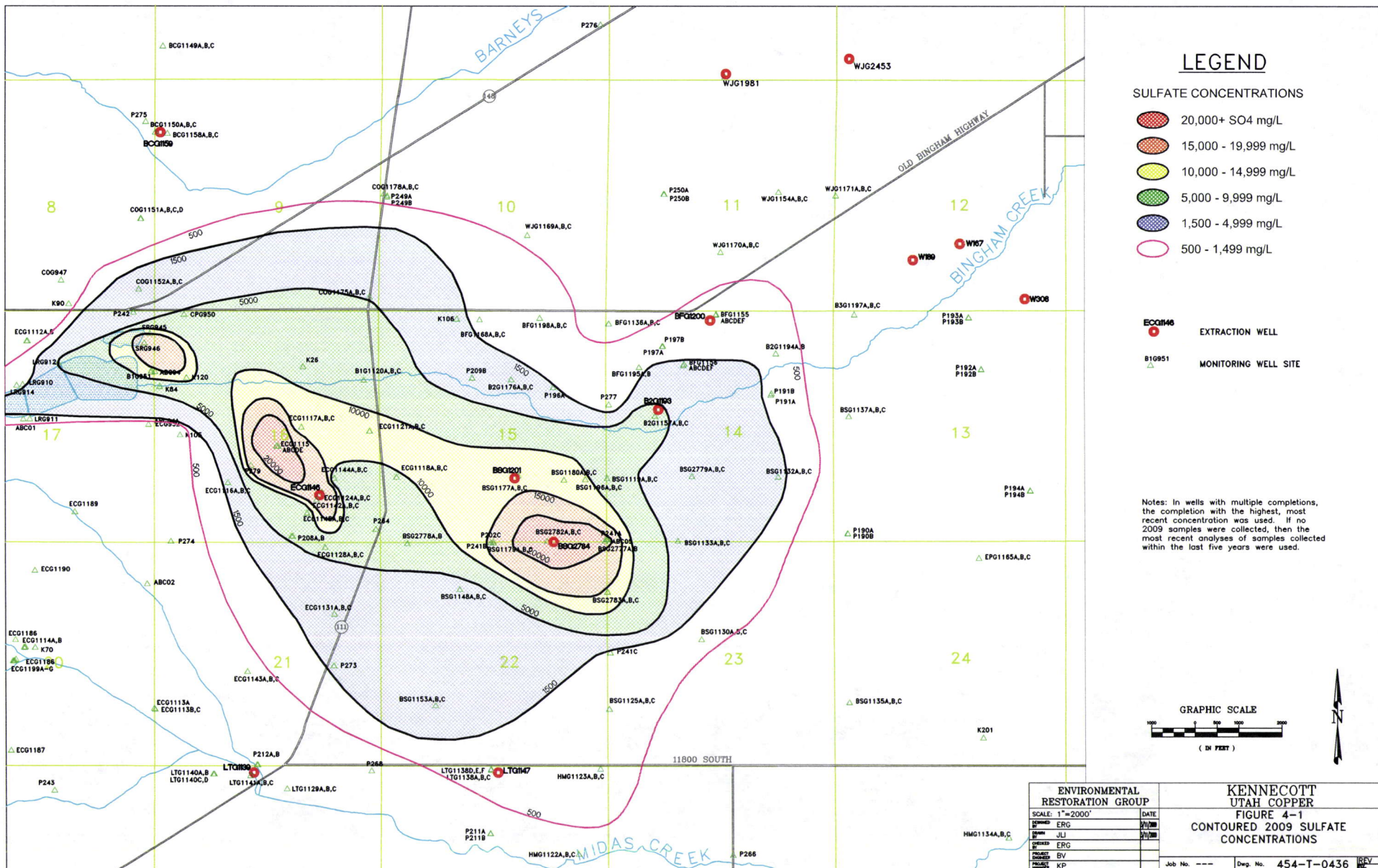
Kennecott Utah Copper Environmental Restoration Group

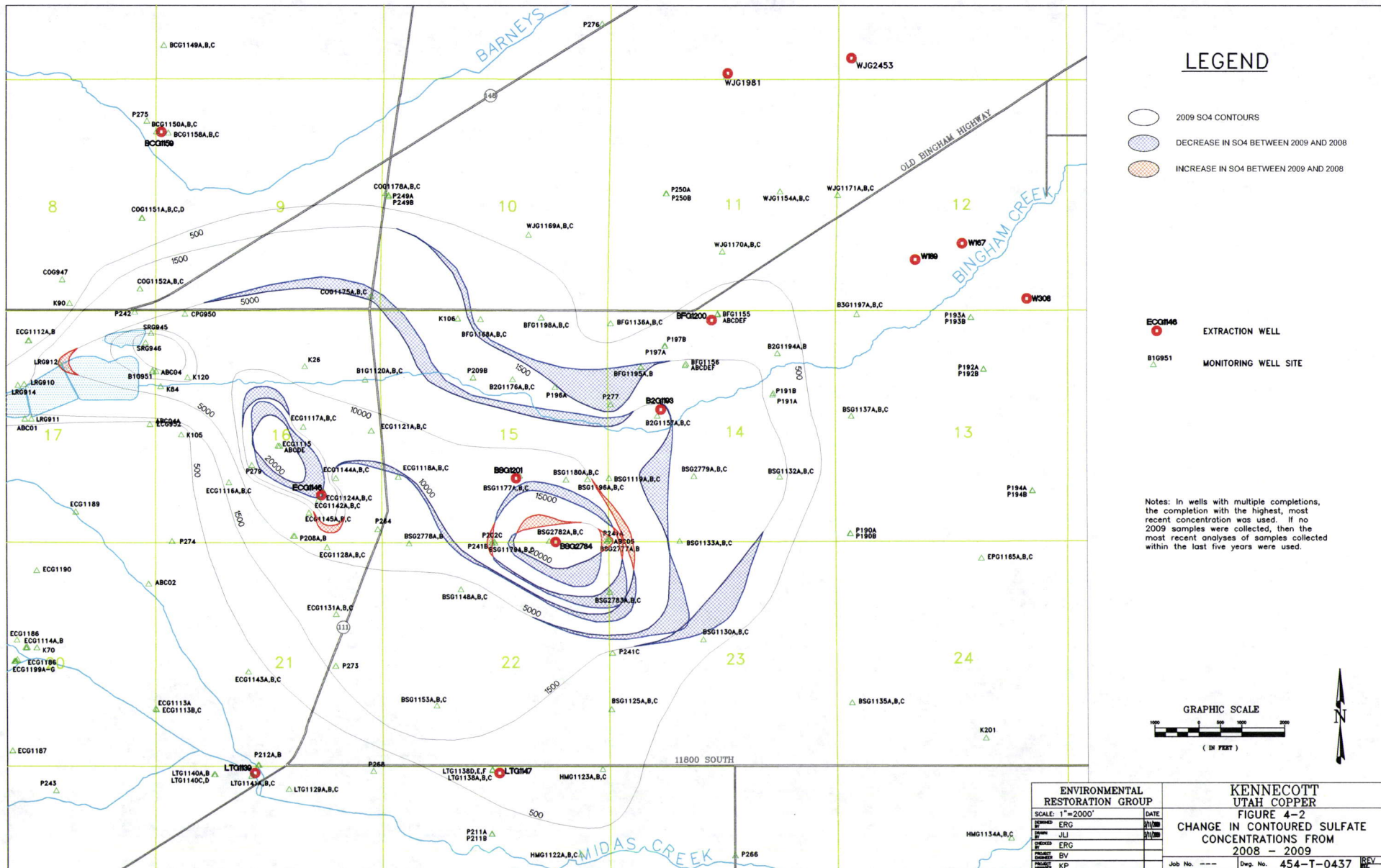
Minor changes in pH from 2008 to 2009 were observed at the barrier wells. Average pH measurements for 2009 were 7.4 at LTG1147, 7.1 at B2G1193, and 7.3 at BFG1200.

Along the north side of the plume area at well WJG1169B, pH increased from 7.0 in 2008 to 7.2 in 2009. WJG1169A went dry in late 2008.

Monitoring wells between barrier well BFG1200 and West Jordan's municipal wells, including WJG1154A and B, WJG1170A and B and WJG1171A and B show steady pH measurements above a pH of 7.0.









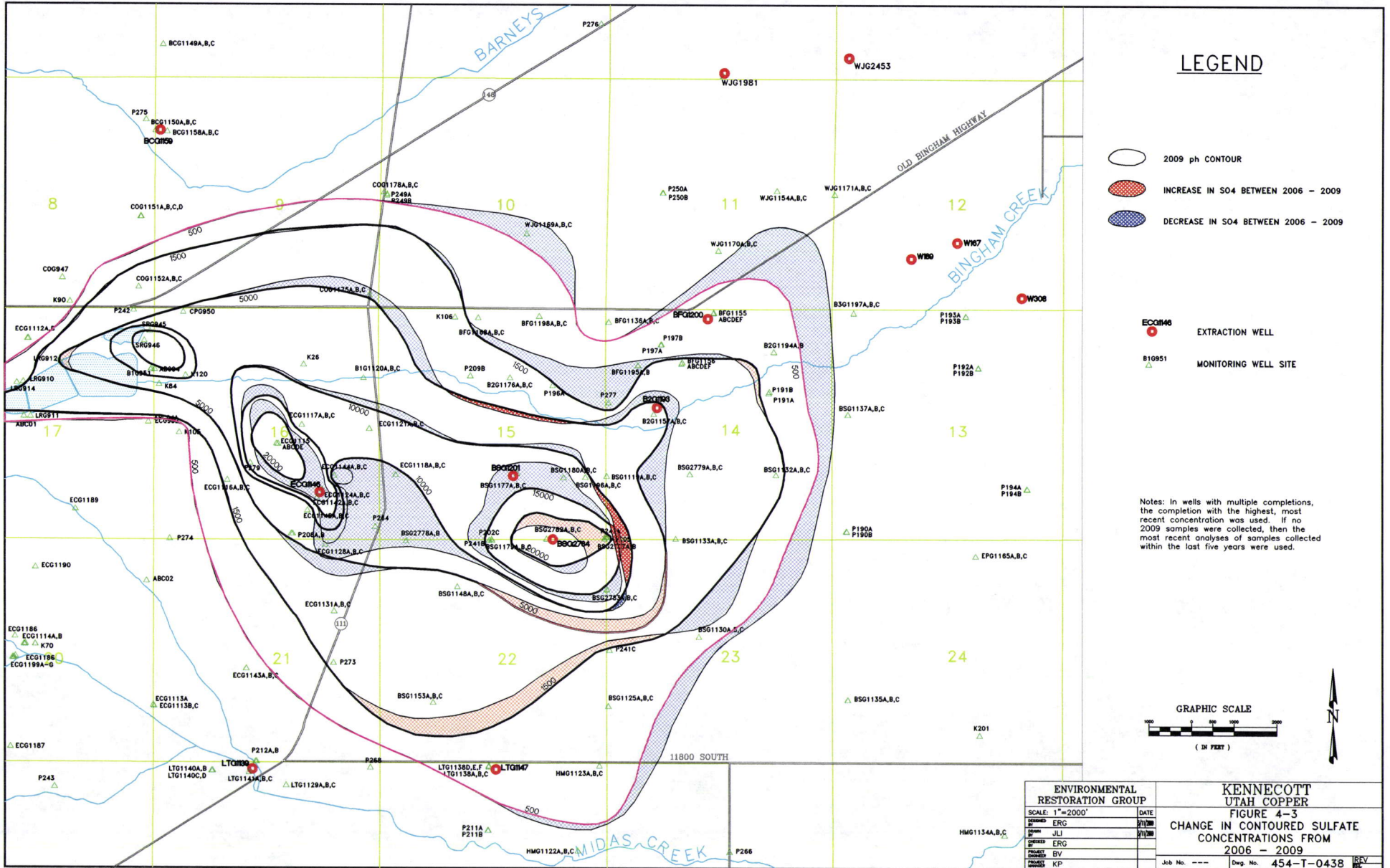


Figure 4-4 Time-Series Plot of Sulfate in SRG946 (See 4.1.1)

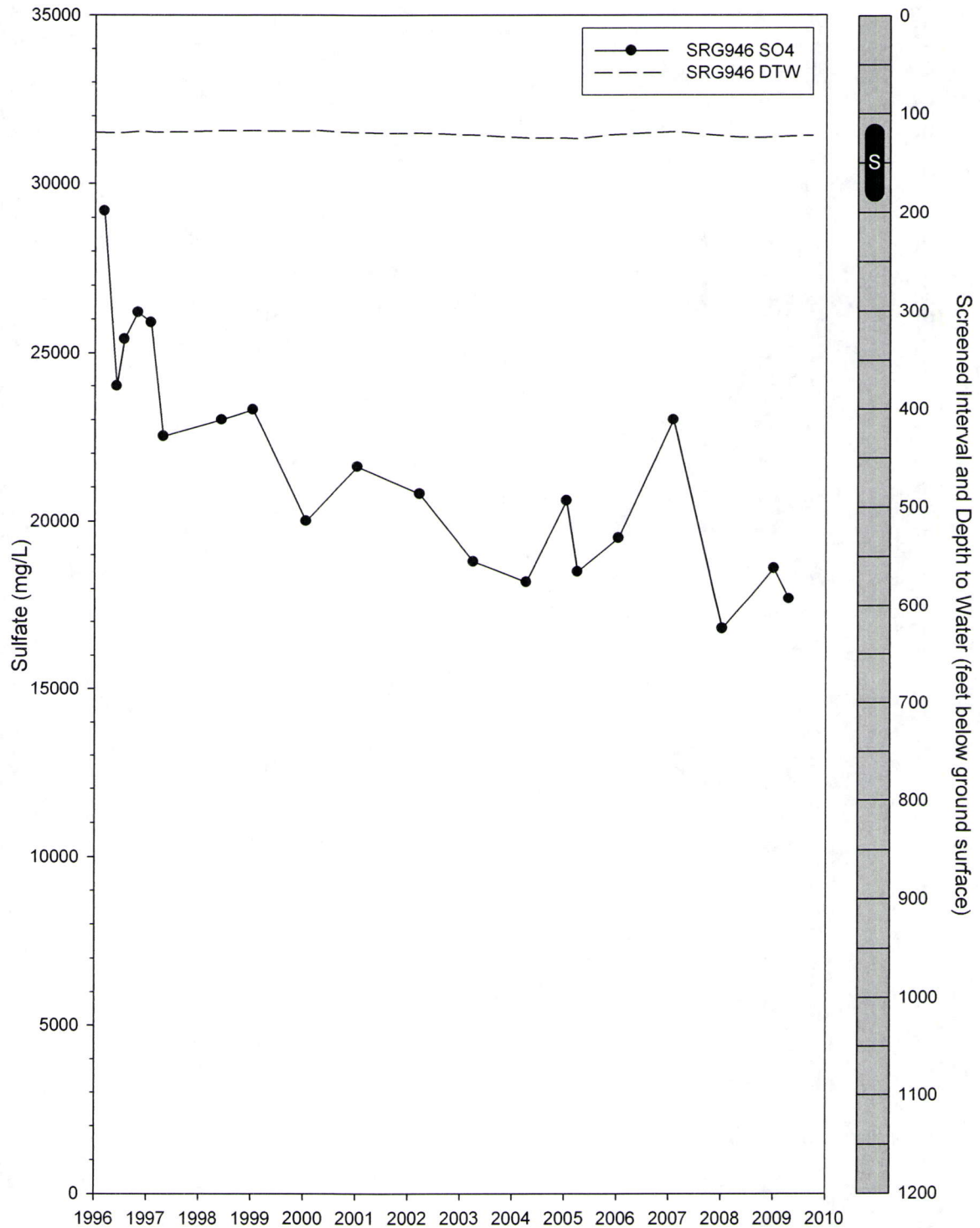




Figure 4-5 Time-Series Plot of Sulfate in ECG1115A, B, and C (See 4.1.1)

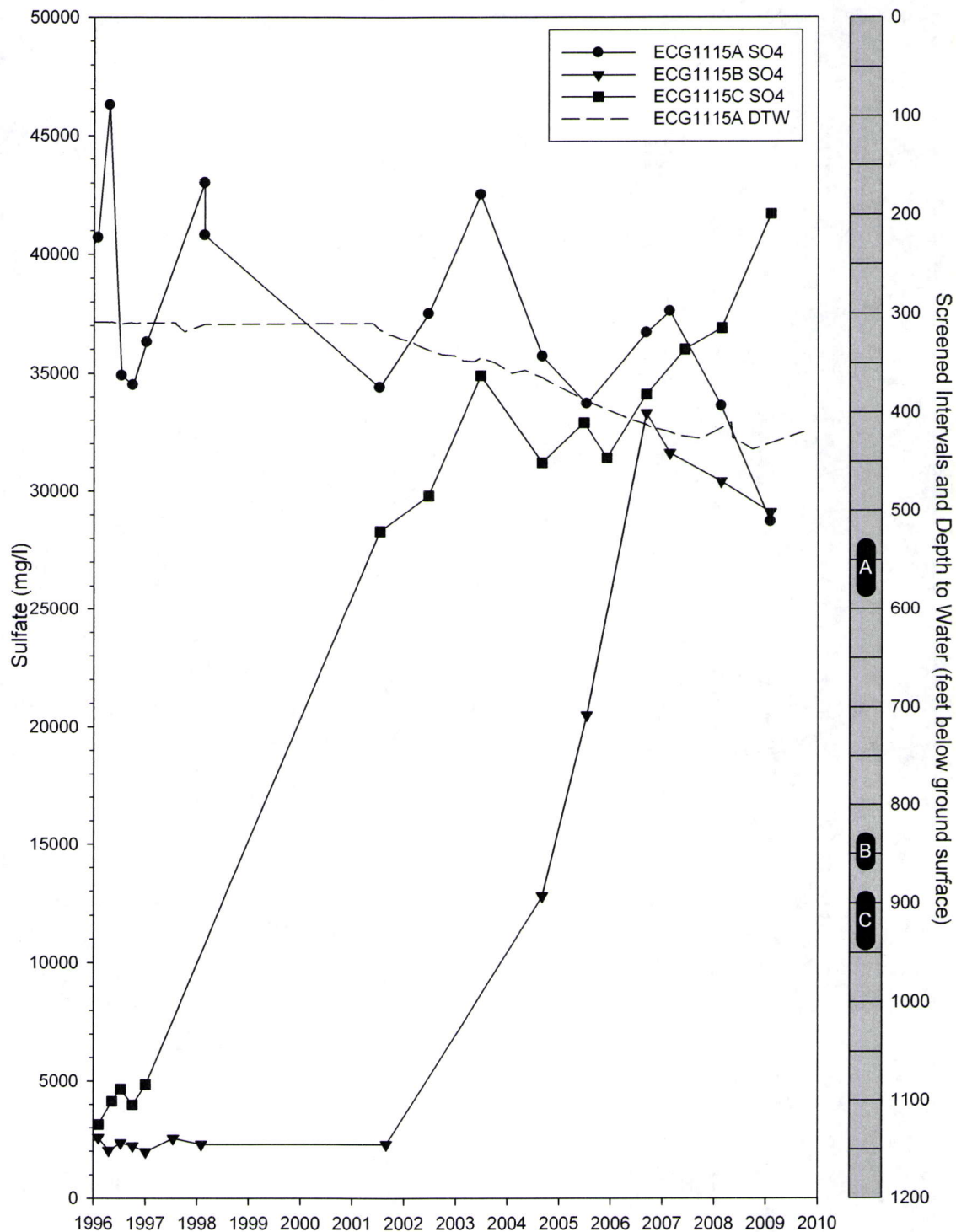
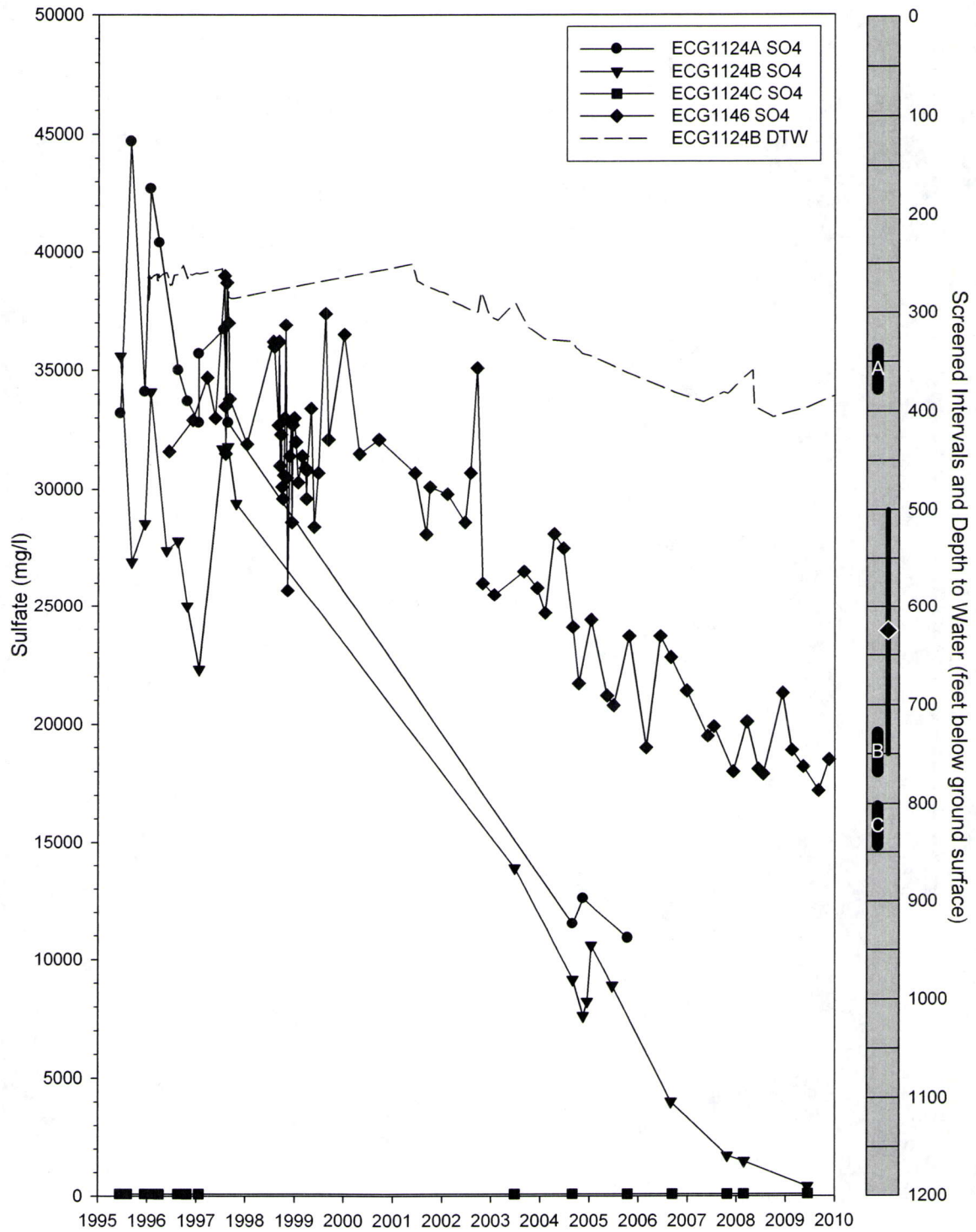
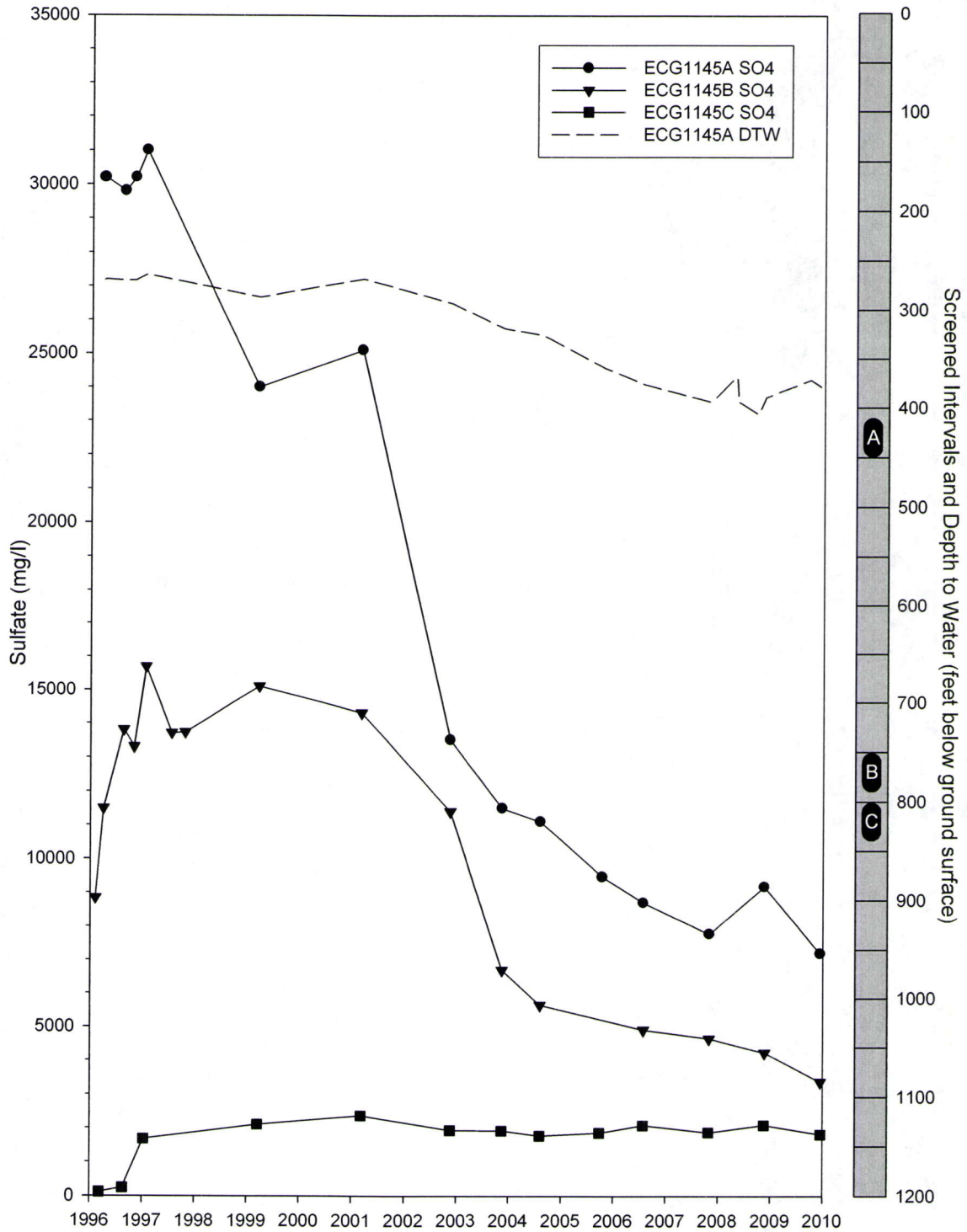


Figure 4-6 Time-Series Plot of Sulfate in ECG1124A, B, and C and ECG1146 (See 4.1.1)

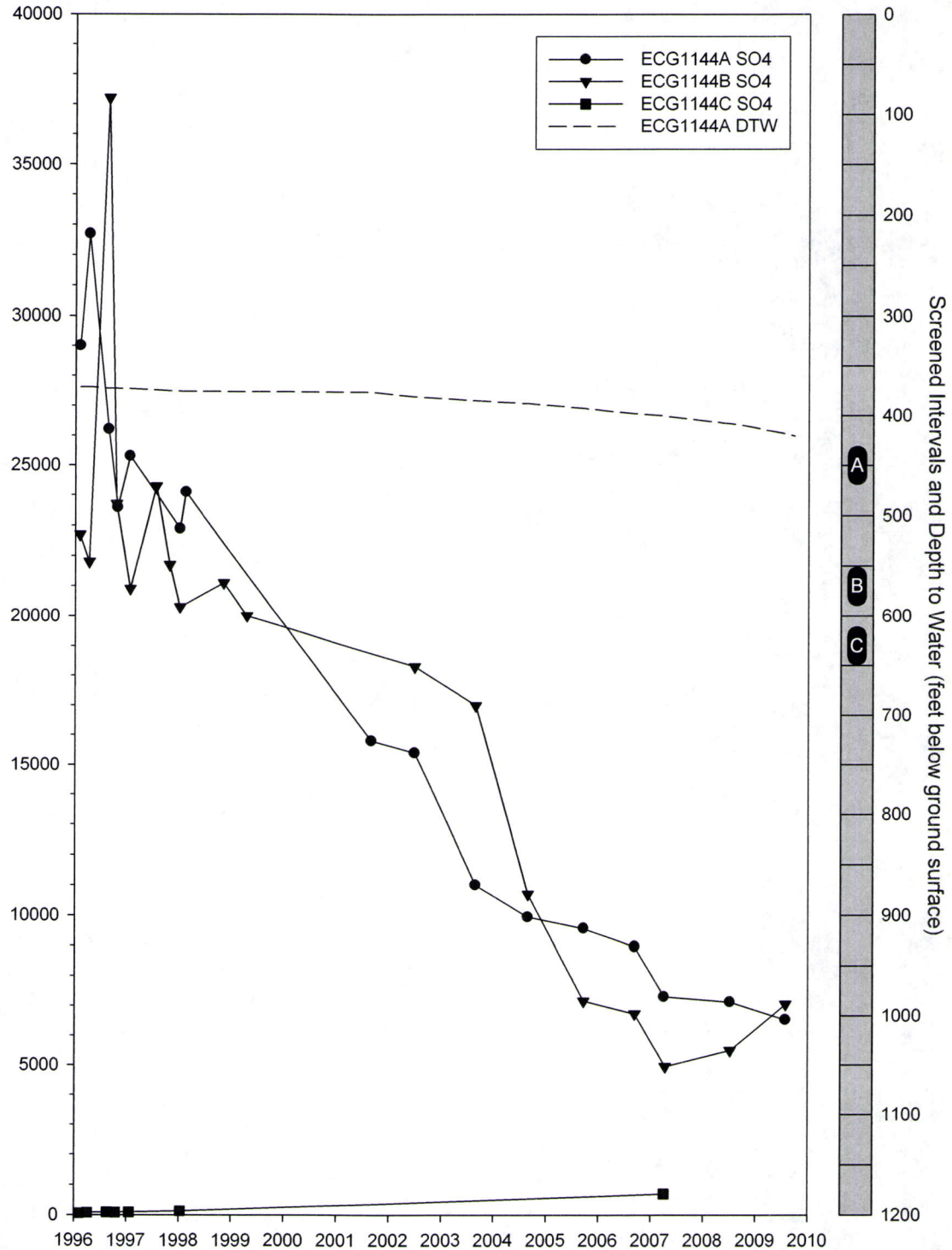




**Figure 4-7 Time-Series Plot of Sulfate in ECG1145A, B, and C (See 4.1.1)**

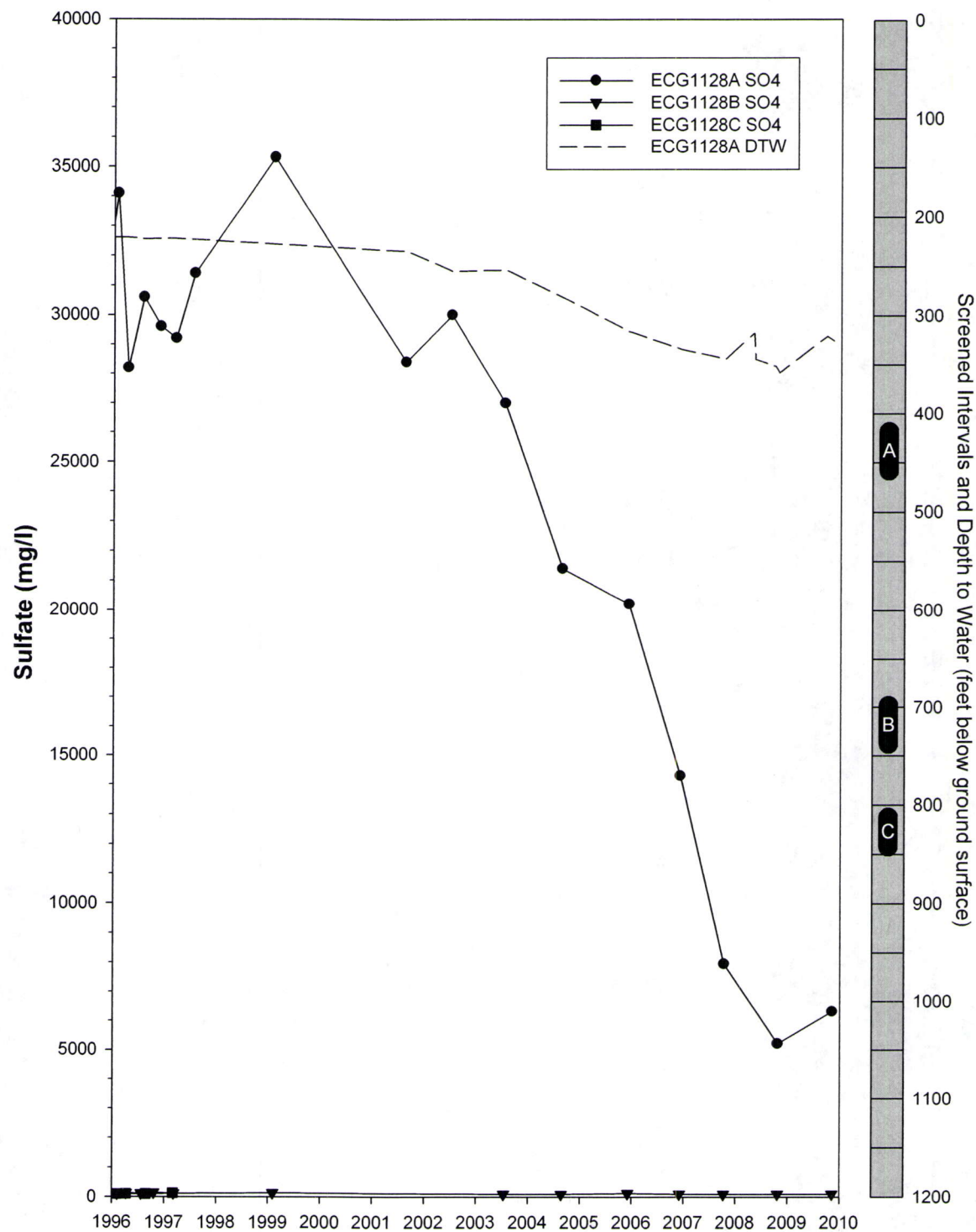


**Figure 4-8 Time-Series Plot of Sulfate in ECG1144A, B, and C (See 2.1.1)**

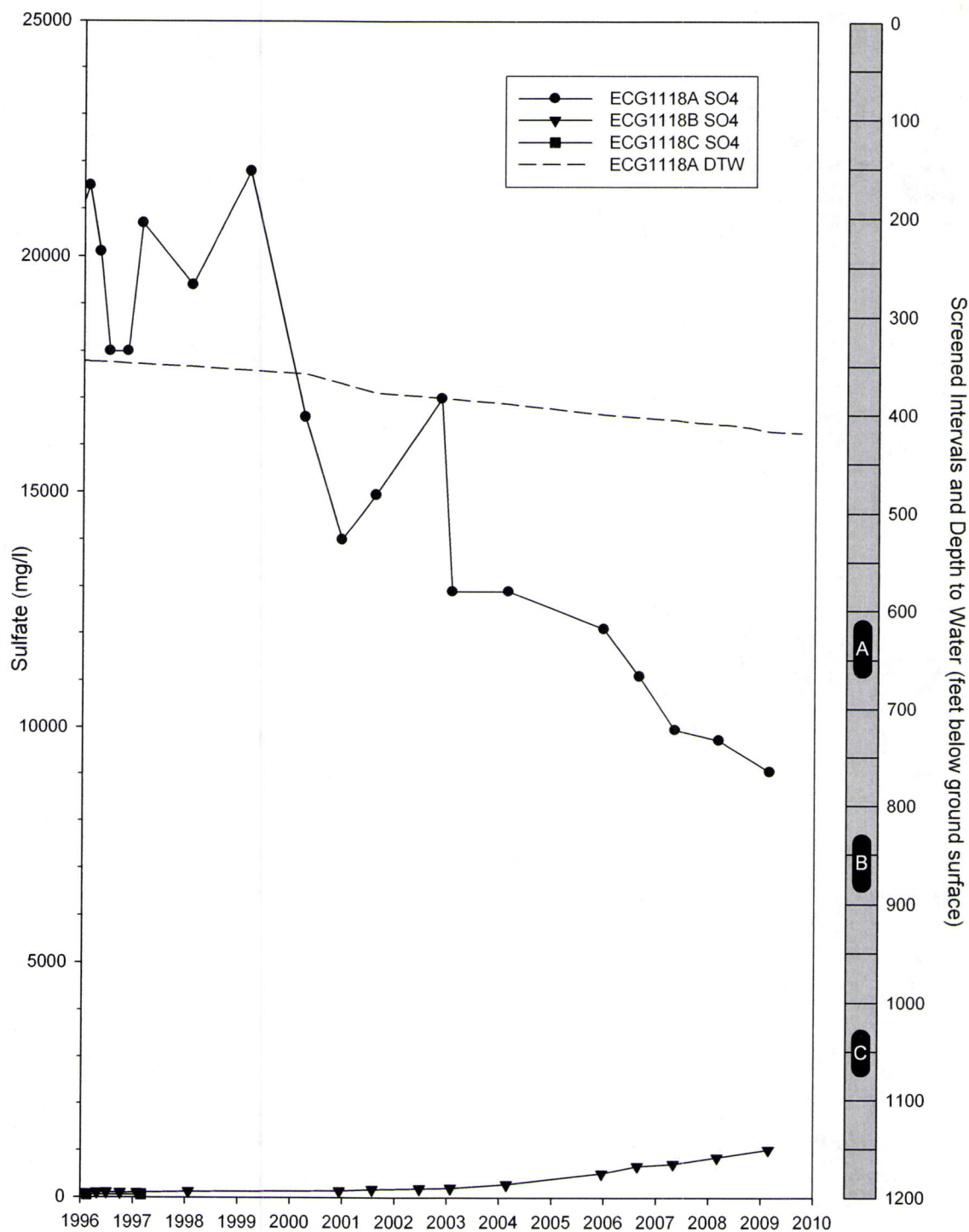




**Figure 4-9 Time-Series Plot of Sulfate in ECG1128A, B, and C (See 4.1.1)**

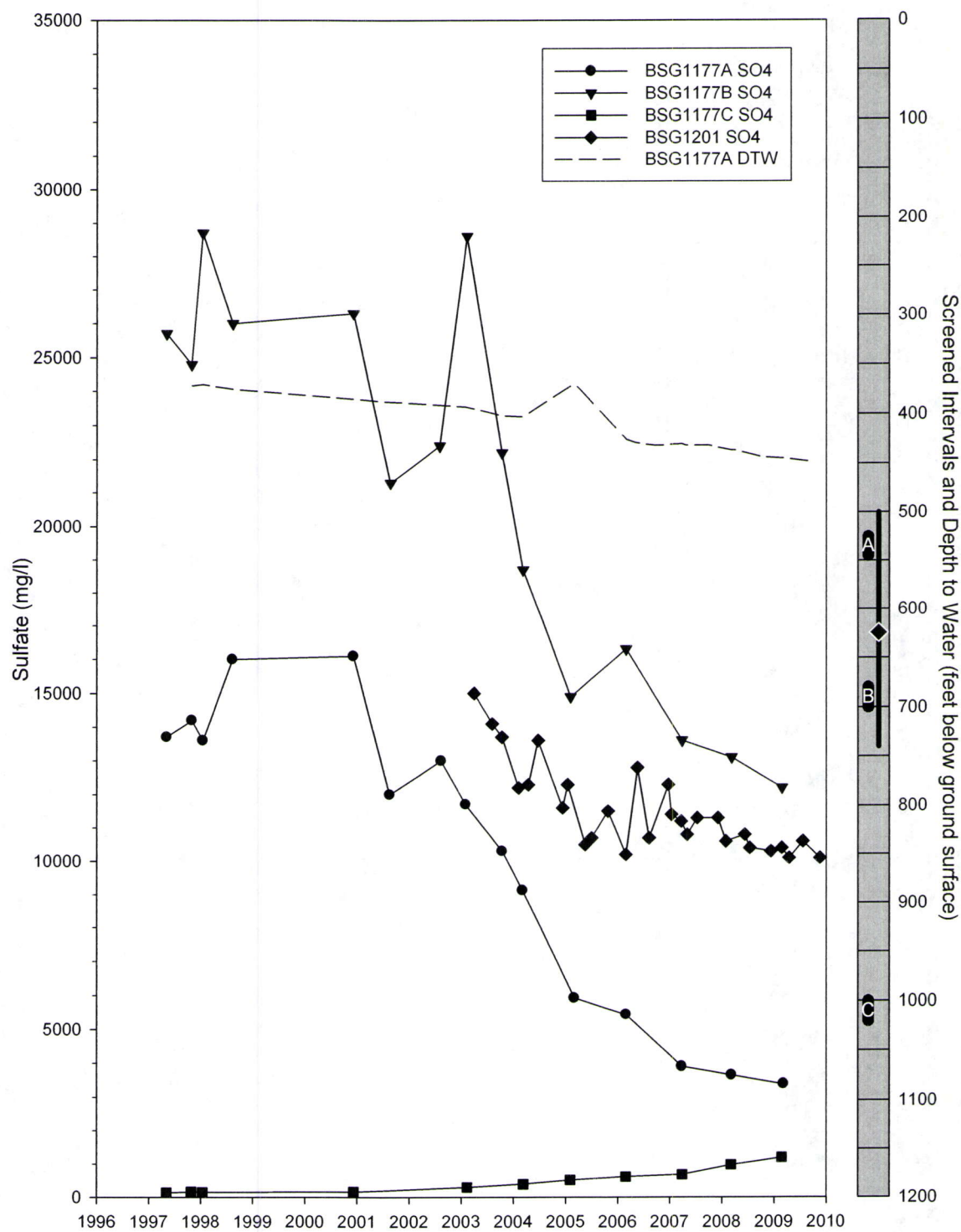


**Figure 4-10 Time-Series Plot of Sulfate in ECG1118A, B, and C (See 4.1.1)**

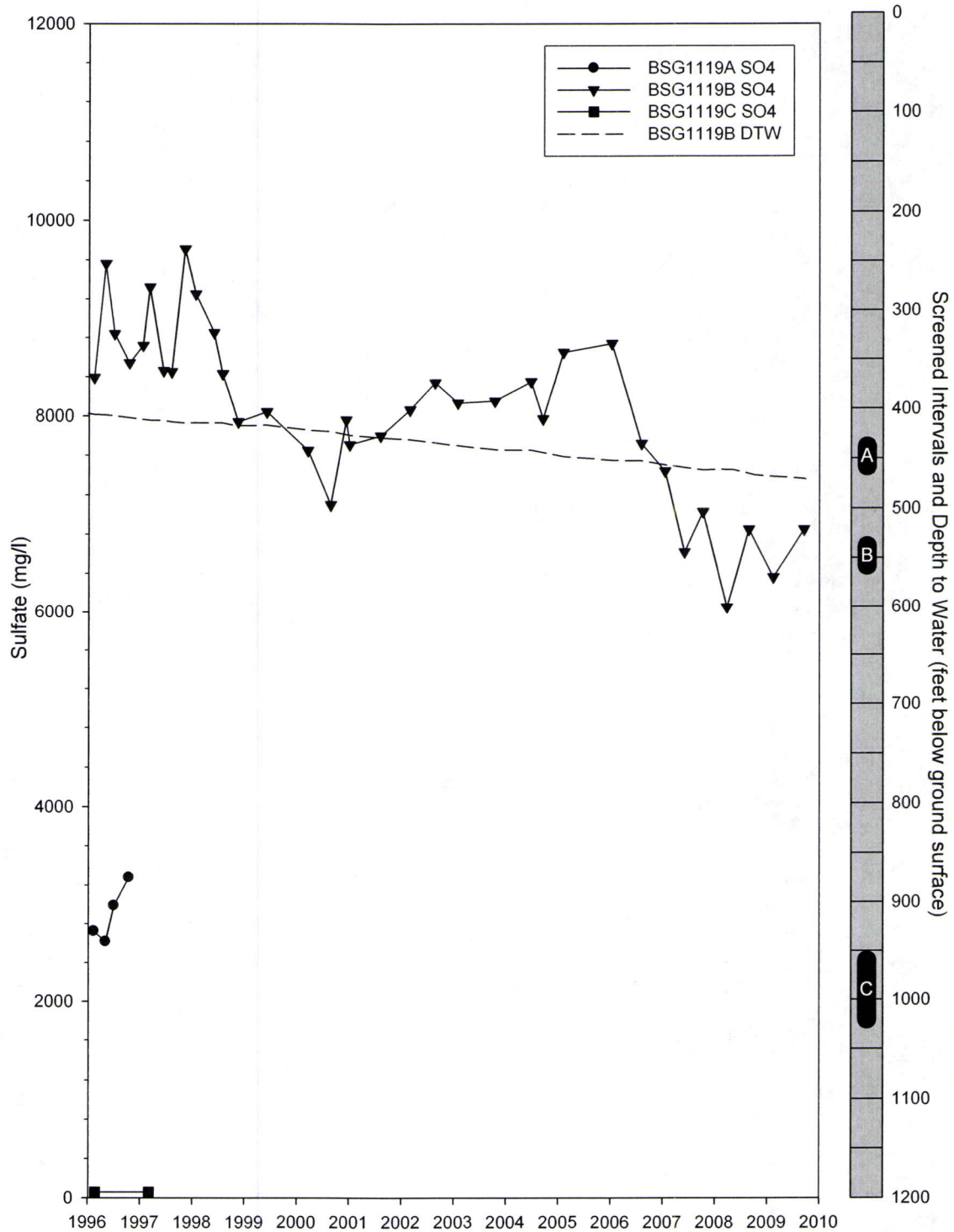




**Figure 4-11 Time-Series Plot of Sulfate in BSG1177A, B, and C and BSG1201 (See 4.1.1)**

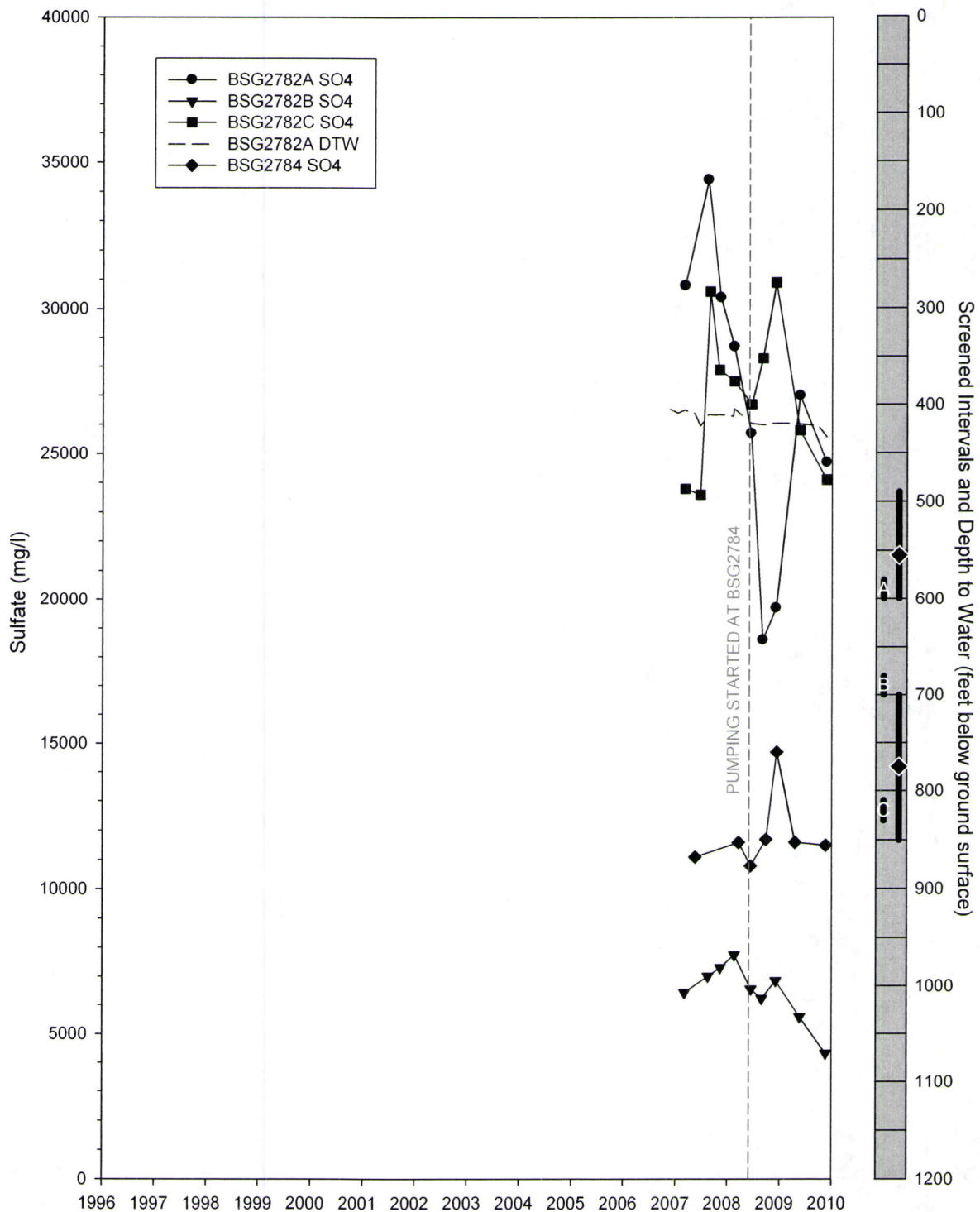


**Figure 4-12 Time-Series Plot of Sulfate in BSG1119A, B, and C (See 4.1.1)**





**Figure 4-13 Time-Series Plot of Sulfate in BSG2782A, B, and C and BSG2784 (See 4.1.1)**



**Figure 4-14 Time-Series Plot of Sulfate in BSG1179A, B, and C and P241B (See 4.1.1)**

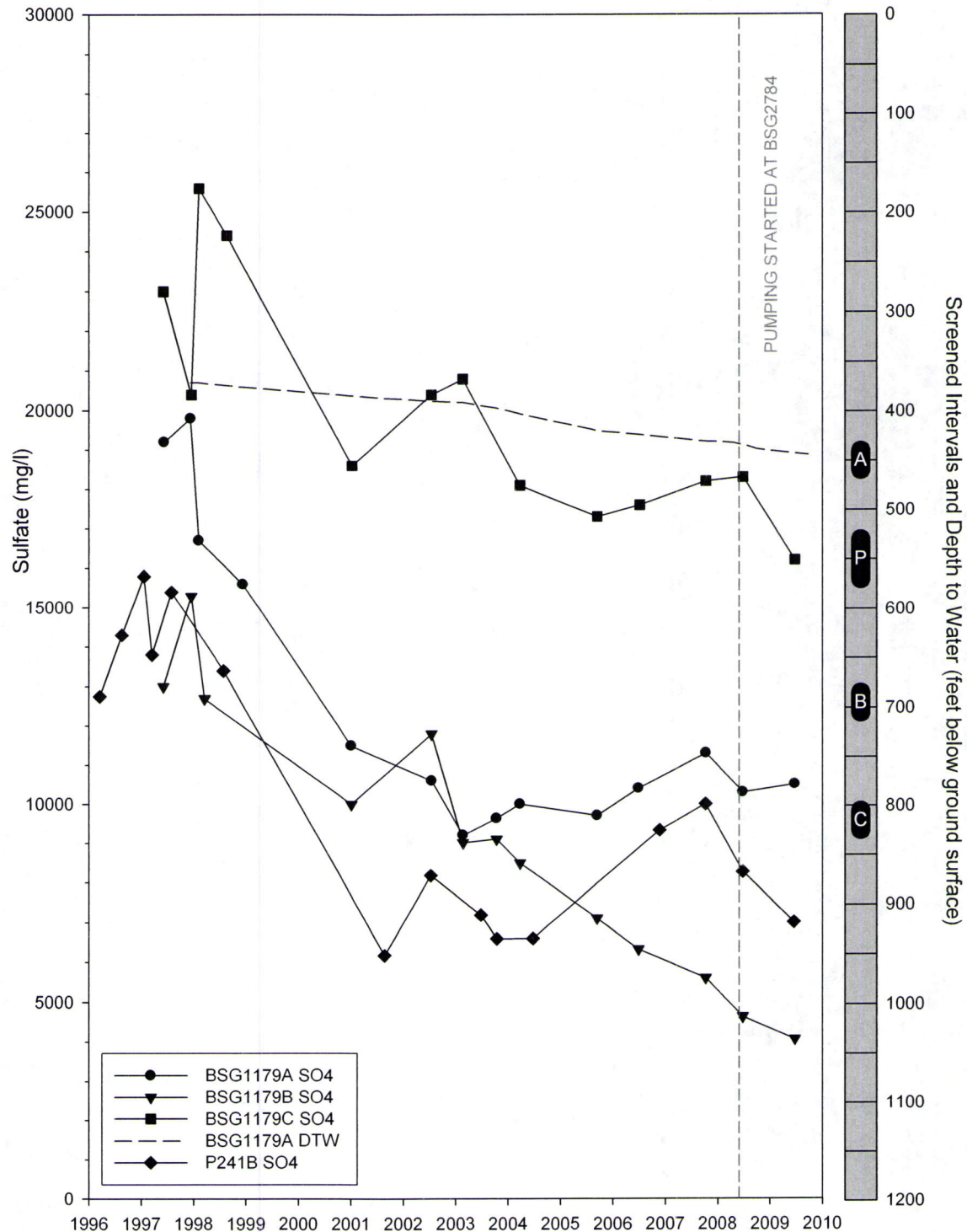
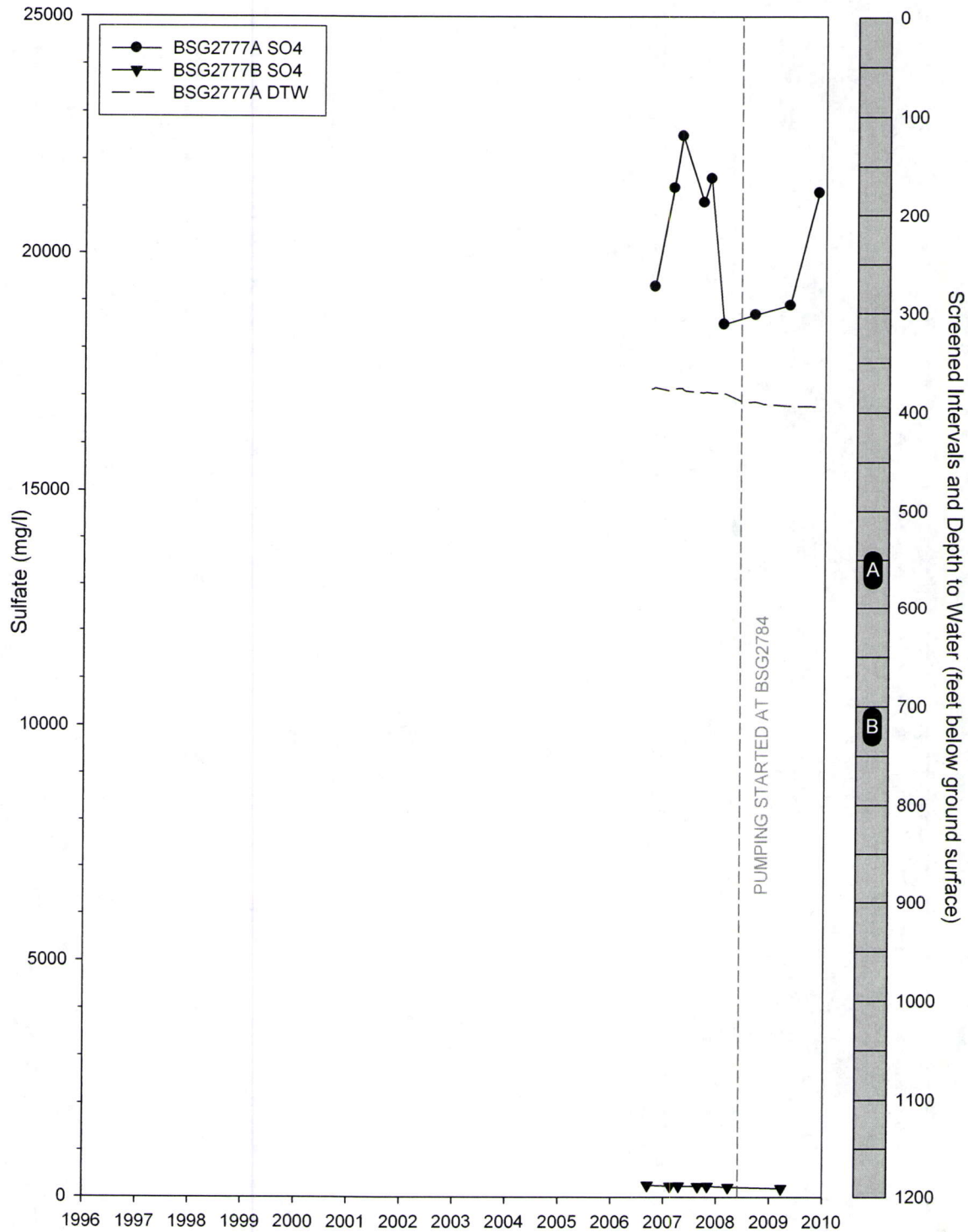
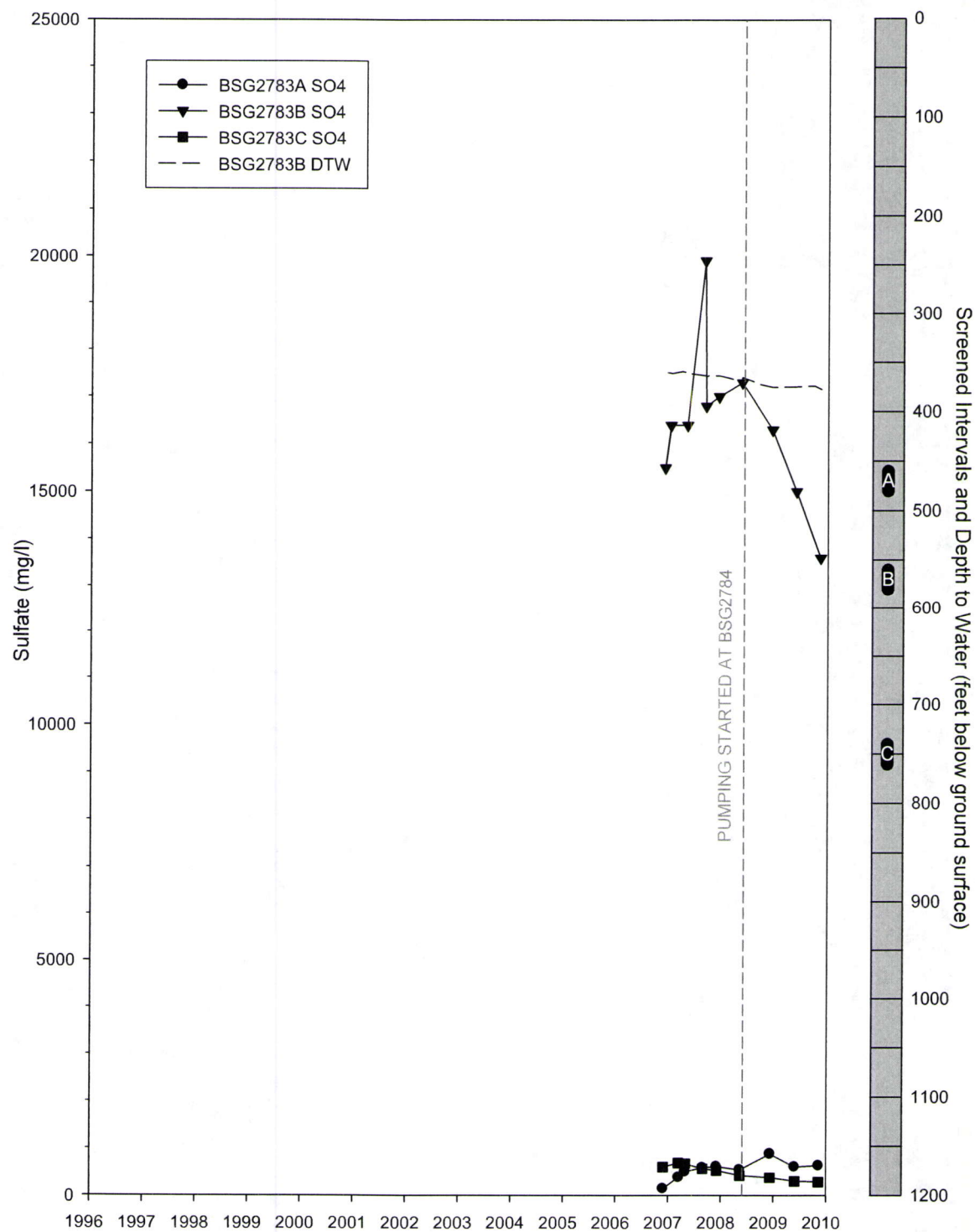




Figure 4-15 Time-Series Plot of Sulfate in BSG2777A, B, and C (See 4.1.1)

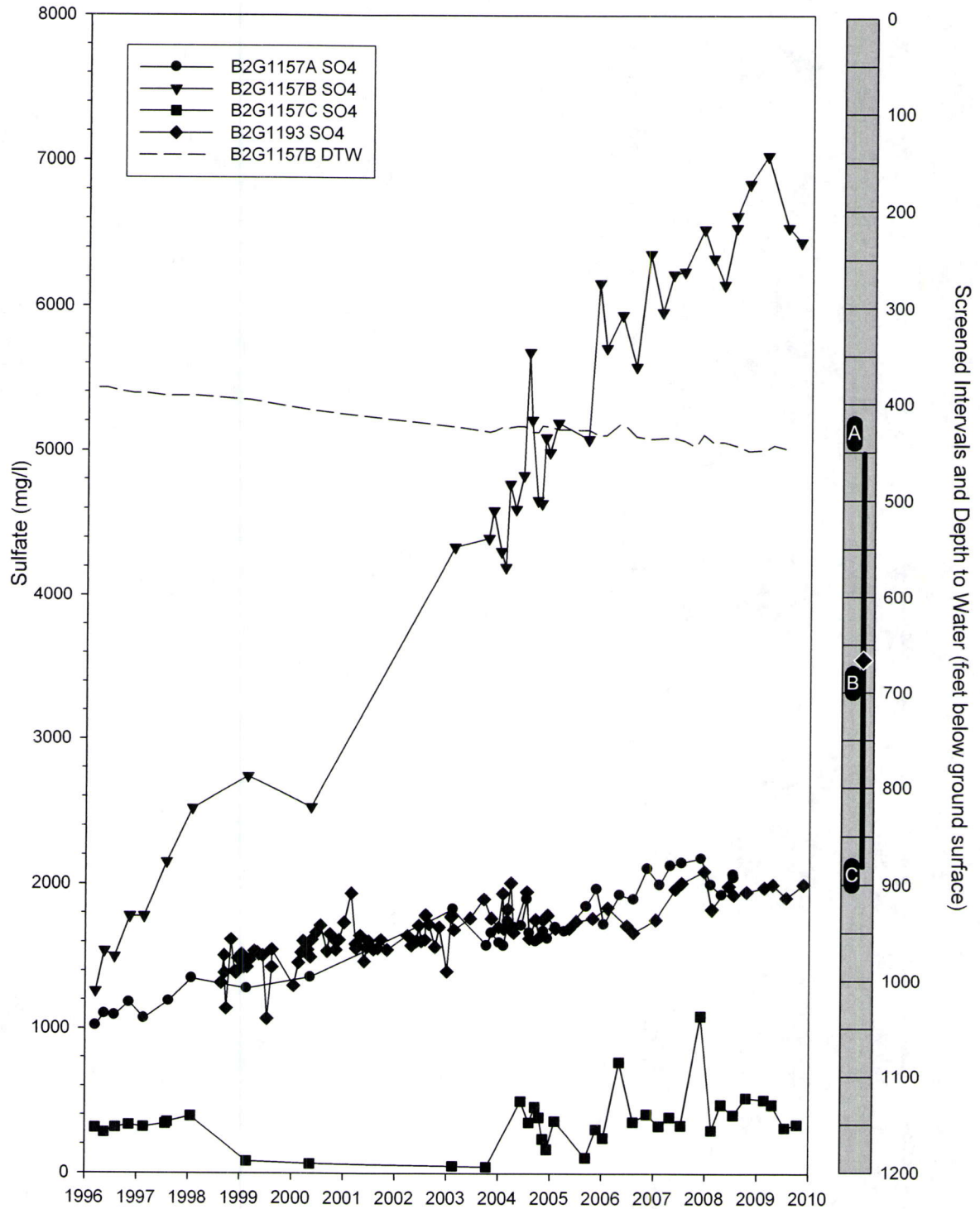


**Figure 4-16 Time-Series Plot of Sulfate in BSG2783A, B, and C (See 4.1.1)**





**Figure 4-17 Time-Series Plot of Sulfate in B2G1157A, B, and C and B2G1193 (See 4.1.2)**



**Figure 4-18 Time-Series Plot of Sulfate in BFG1156A through F (See 4.1.2)**

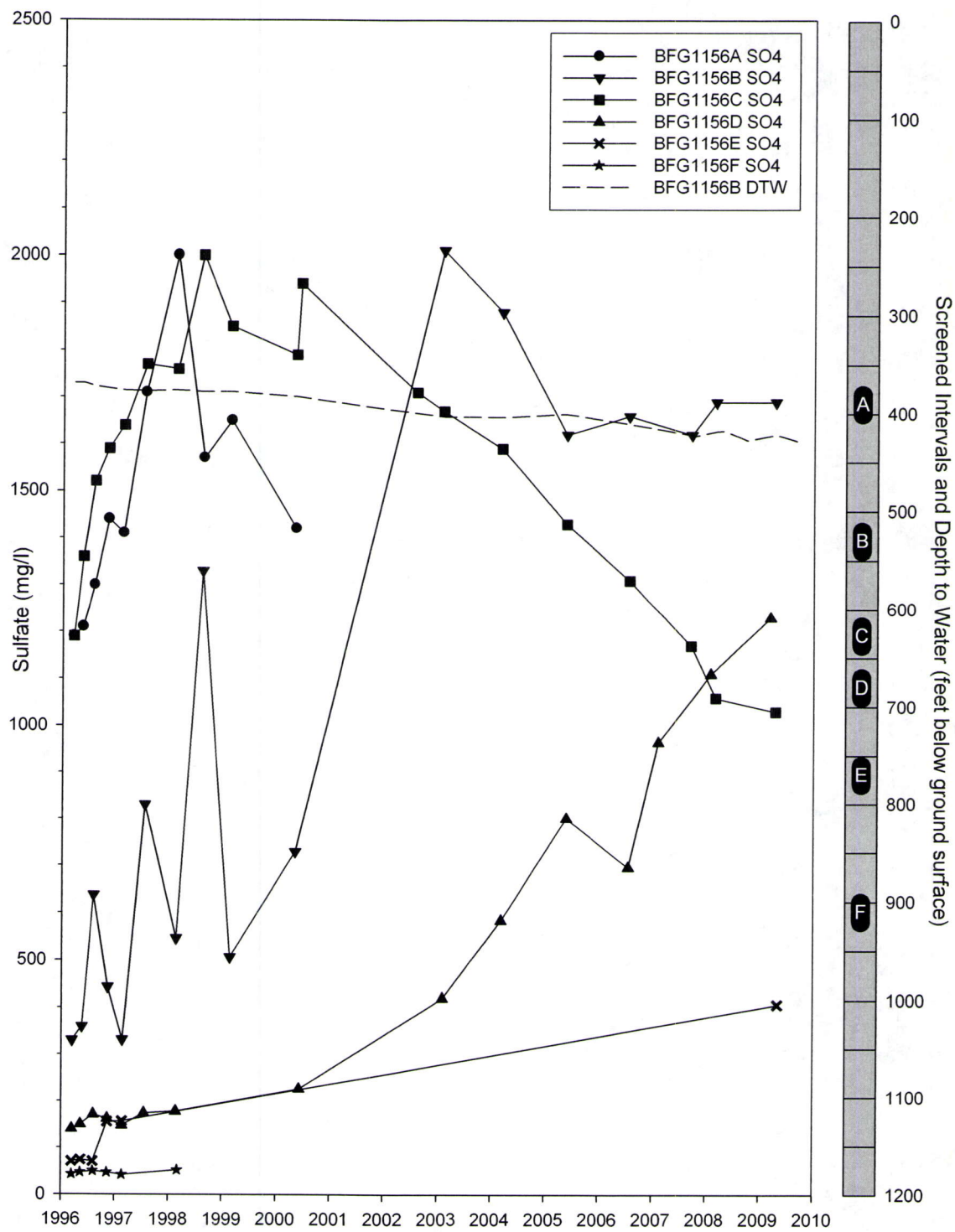
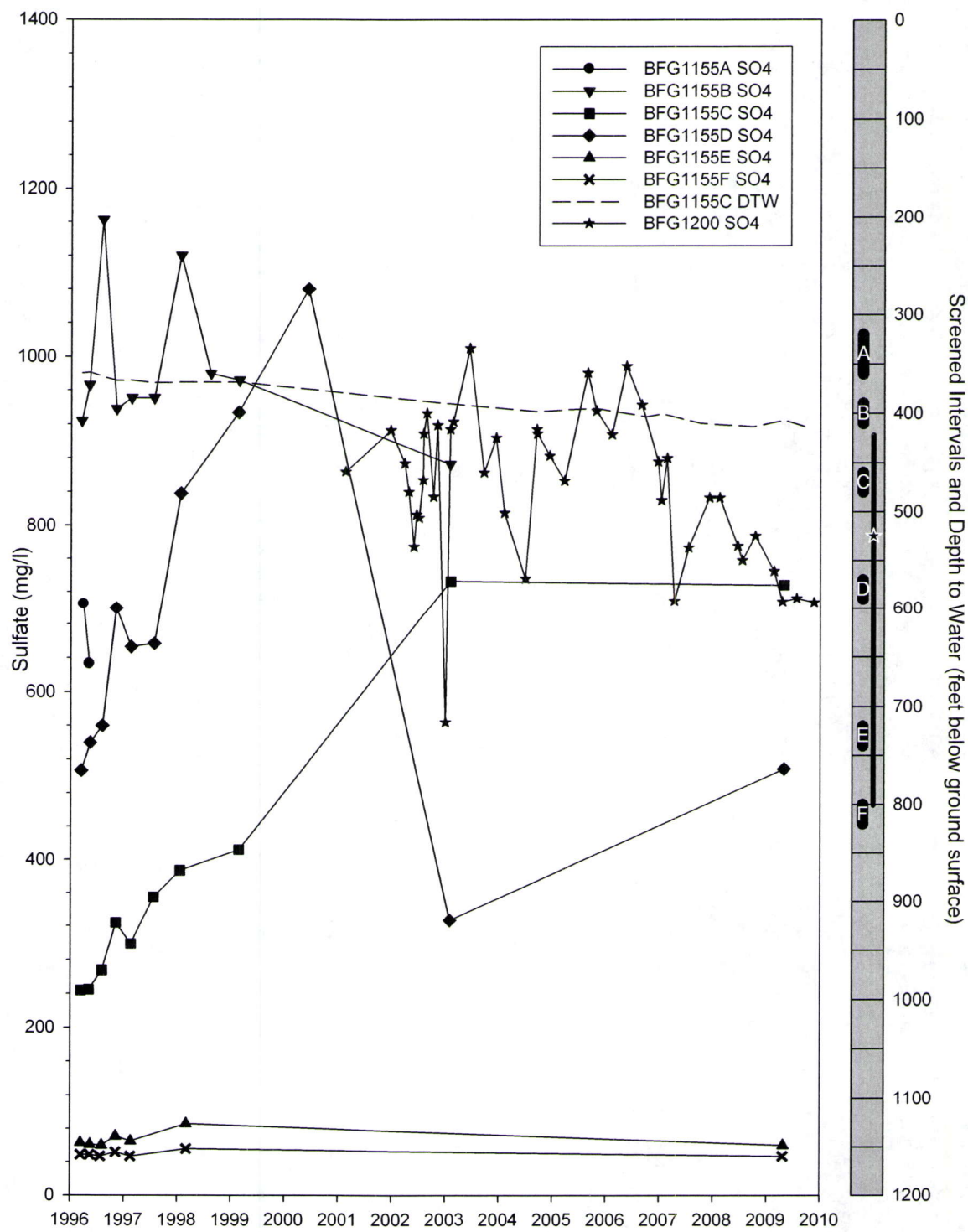




Figure 4-19 Time-Series Plot of Sulfate in BFG1155A through F and B2G1200 (See 4.1.2)



**Figure 4-20 Time-Series Plot of Sulfate in BFG1195A and B (See 4.1.2)**

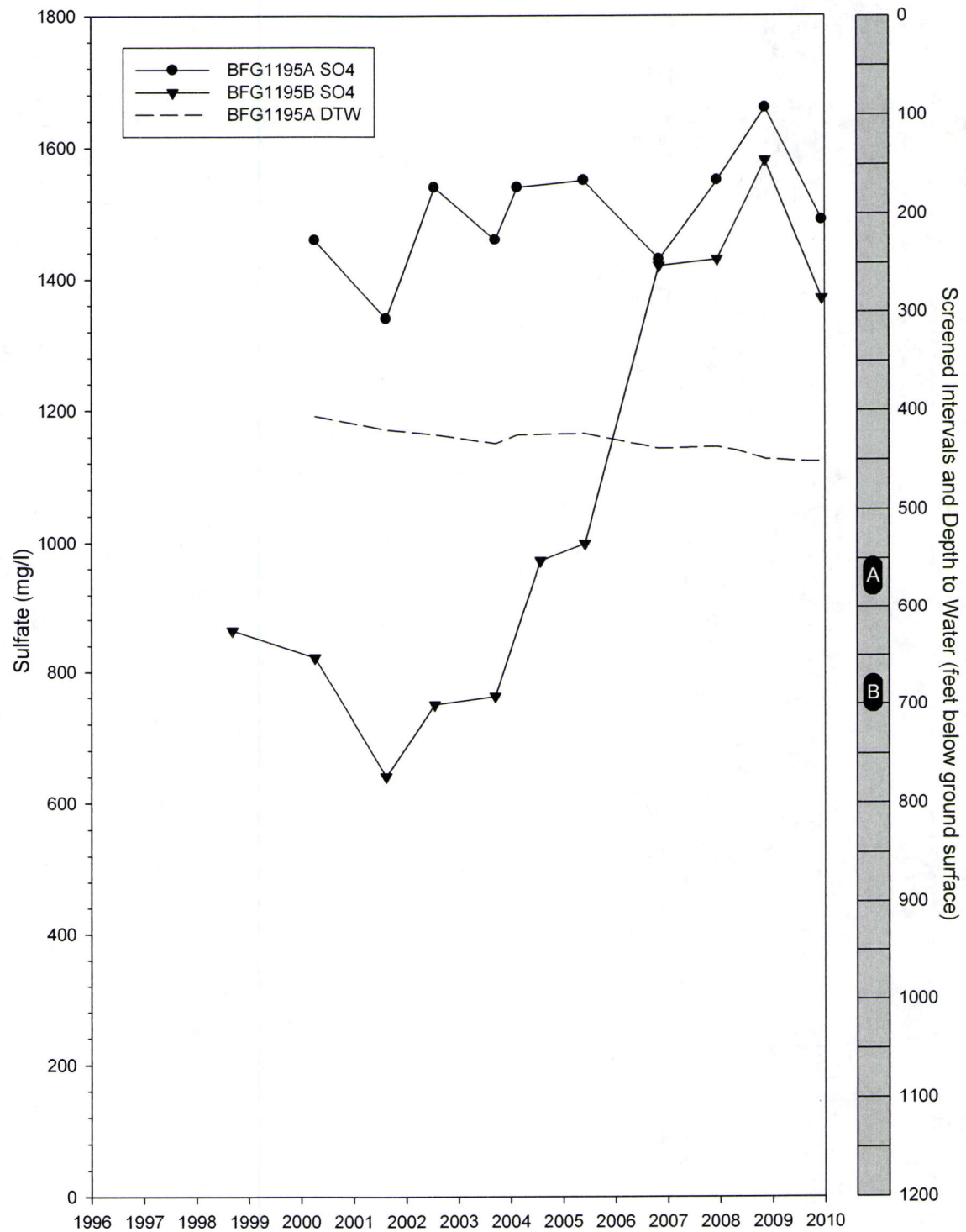
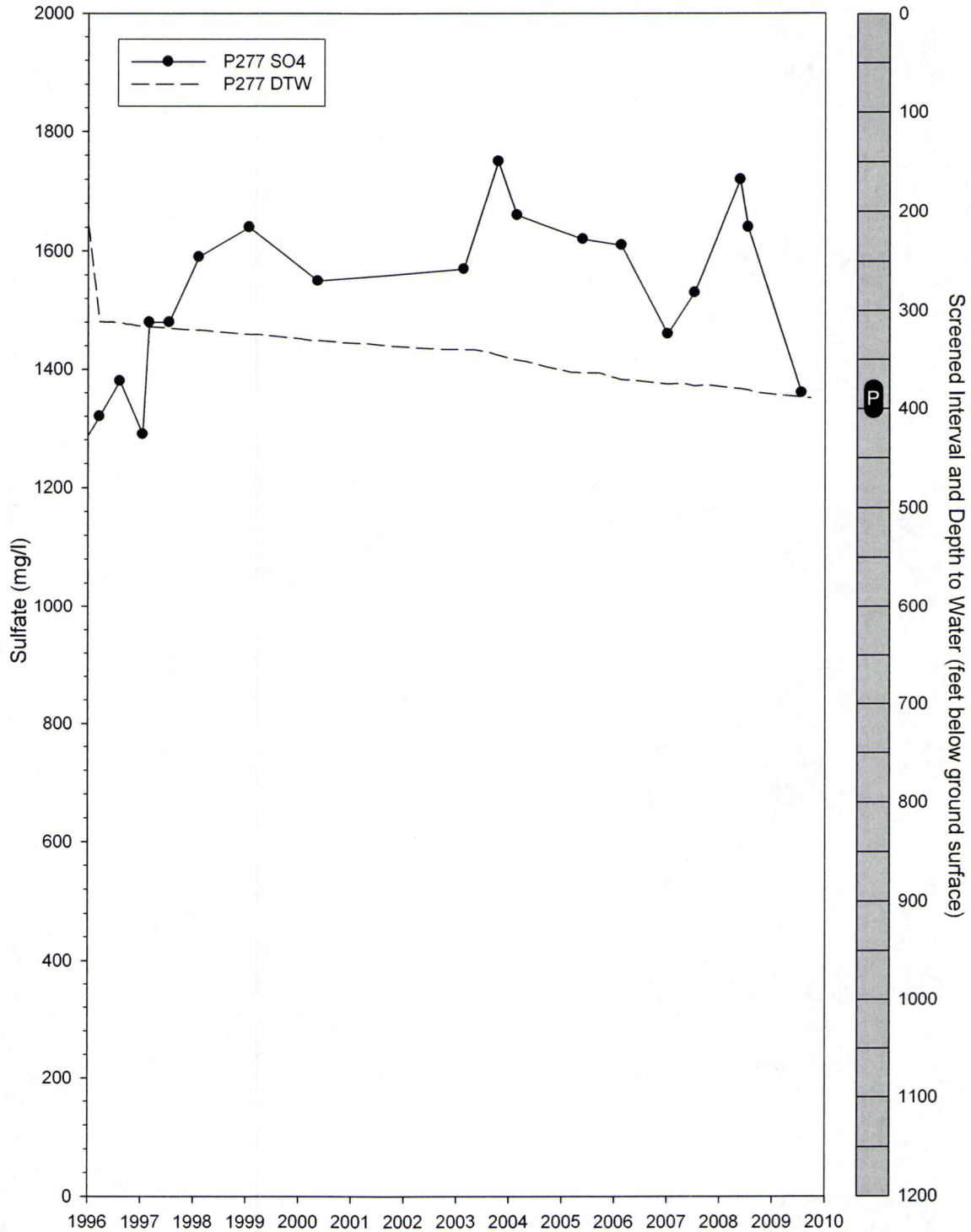
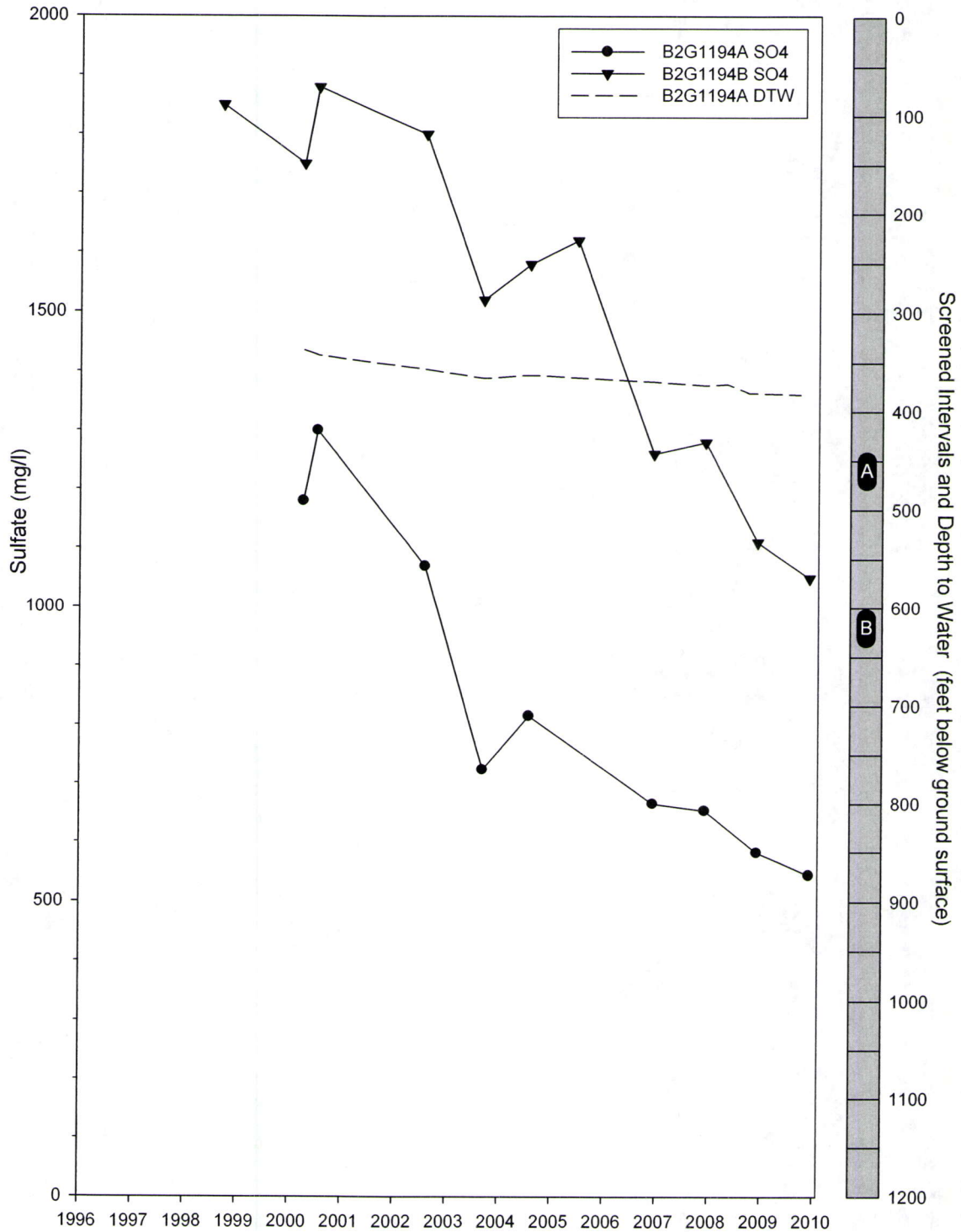


Figure 4-21 Time-Series Plot of Sulfate in P277 (See 4.1.2)





**Figure 4-22 Time-Series Plot of Sulfate in B2G1194A and B (See 4.1.2)**



**Figure 4-23 Time-Series Plot of Sulfate in B3G1197A, B, and C (See 4.1.2)**

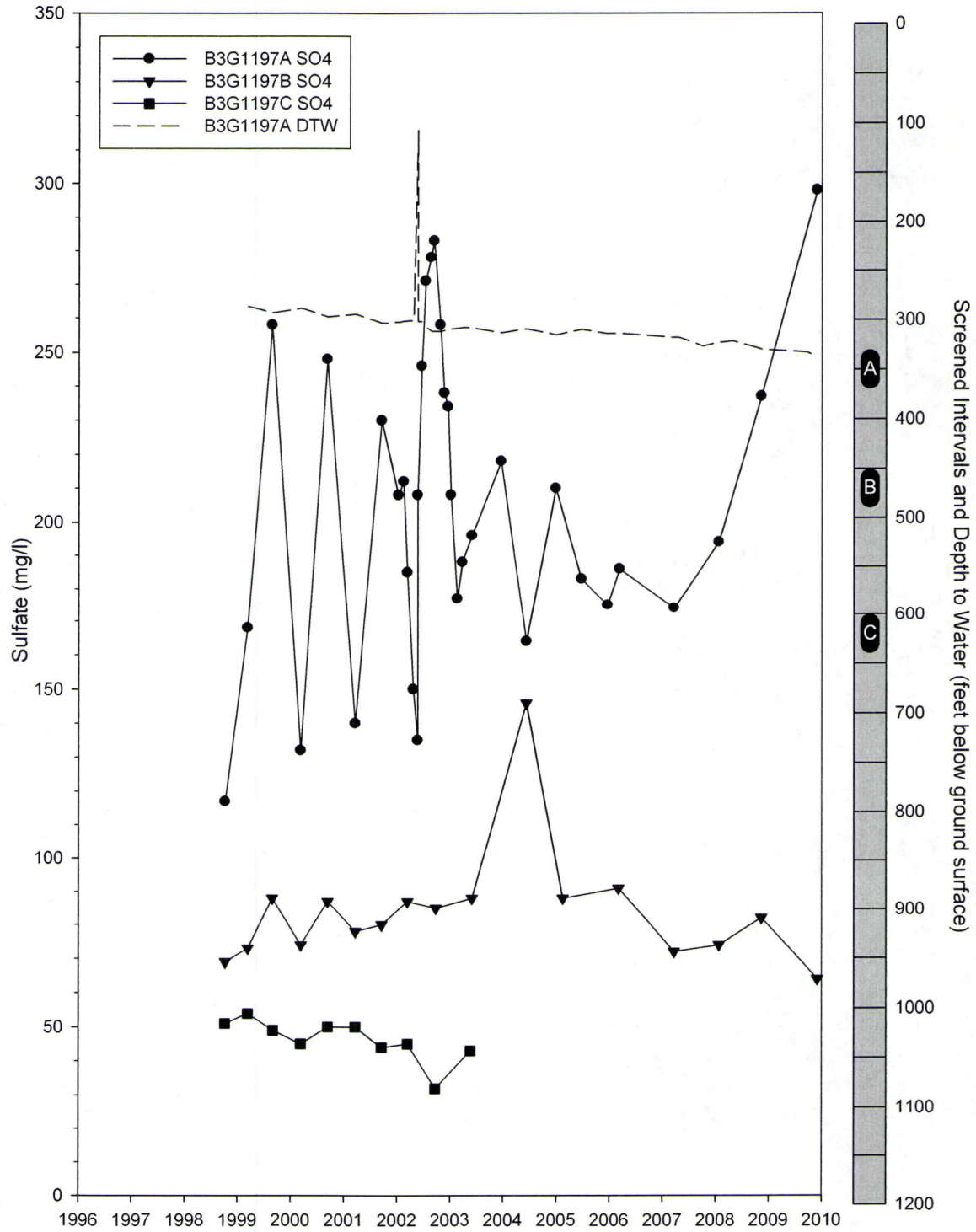
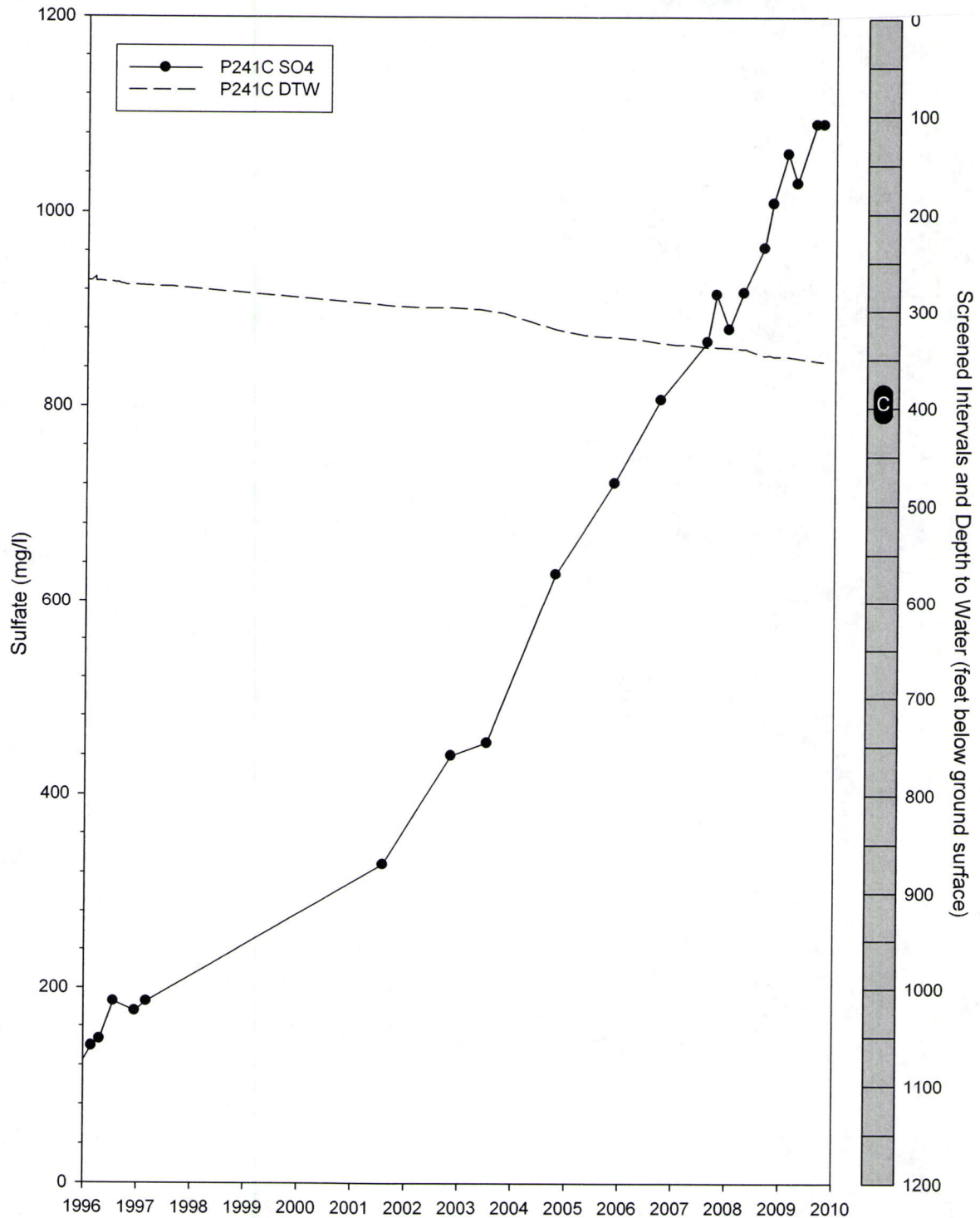
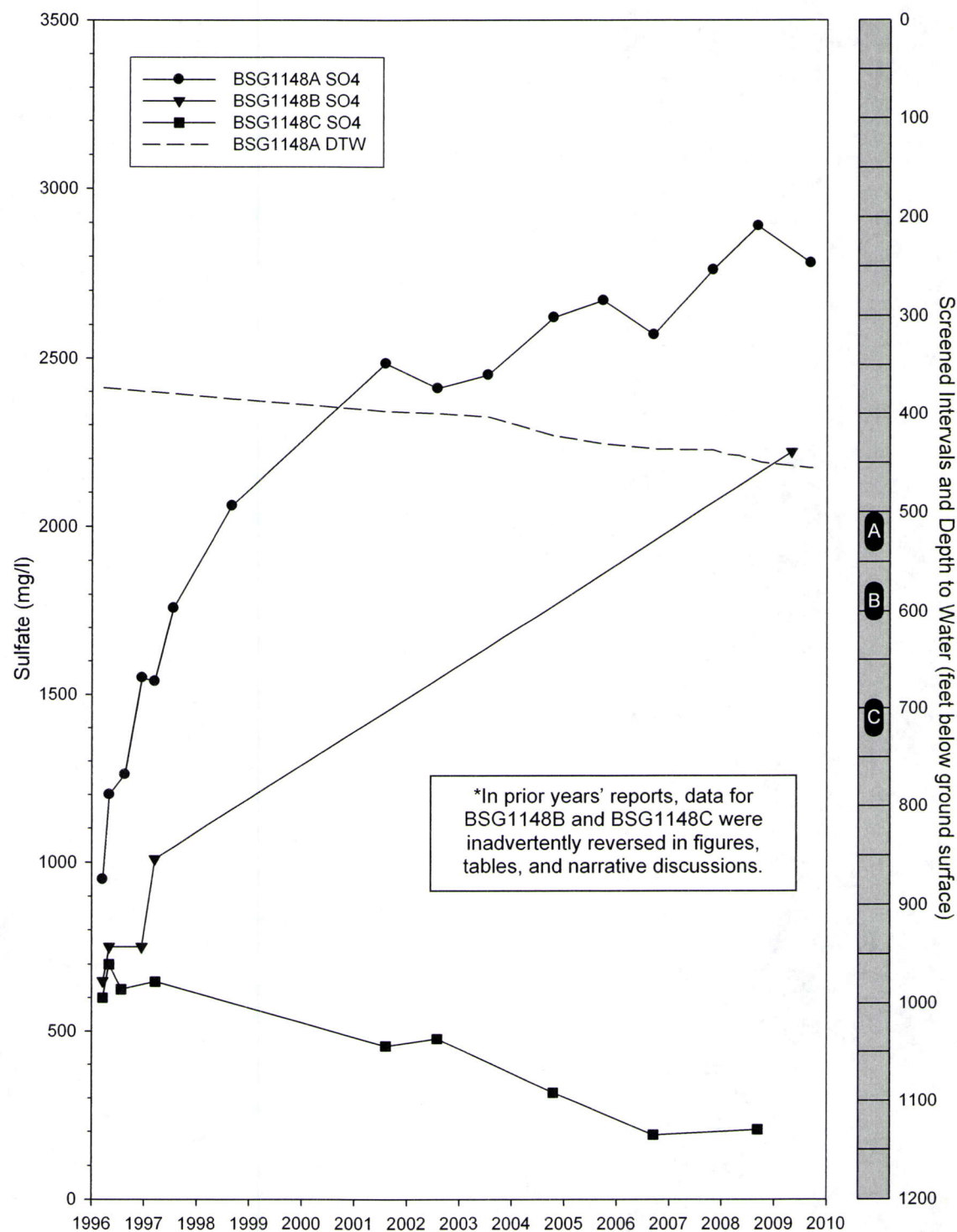


Figure 4-24 Time-Series Plot of Sulfate in P241C (See 4.1.3)

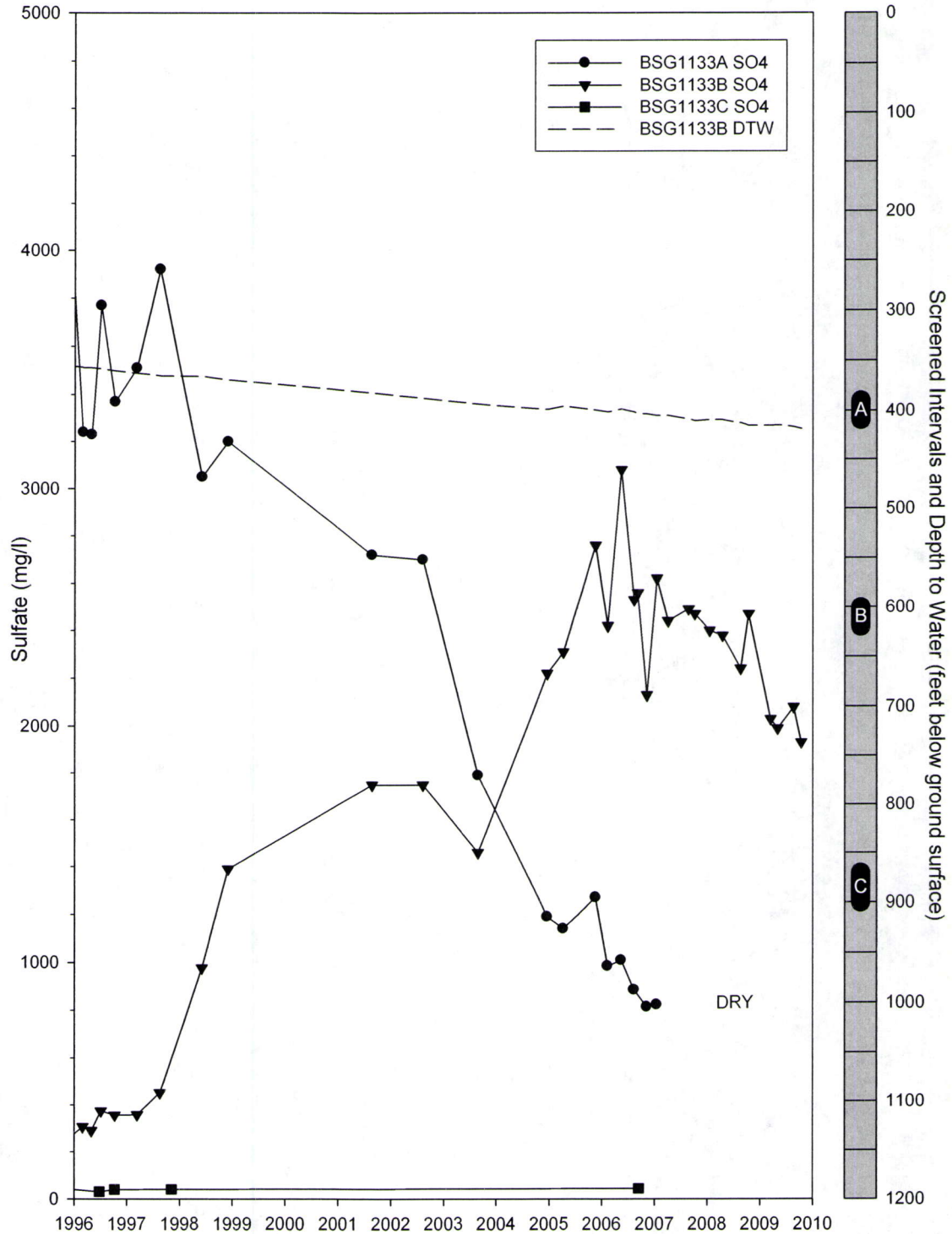




**Figure 4-25 Time-Series Plot of Sulfate in BSG1148A, B, and C (See 4.1.3)**



**Figure 4-26 Time-Series Plot of Sulfate in BSG1133A, B, and C (See 4.1.3)**



**Figure 4-27 Time-Series Plot of Sulfate in BSG1132A, B, and C (See 4.1.3)**

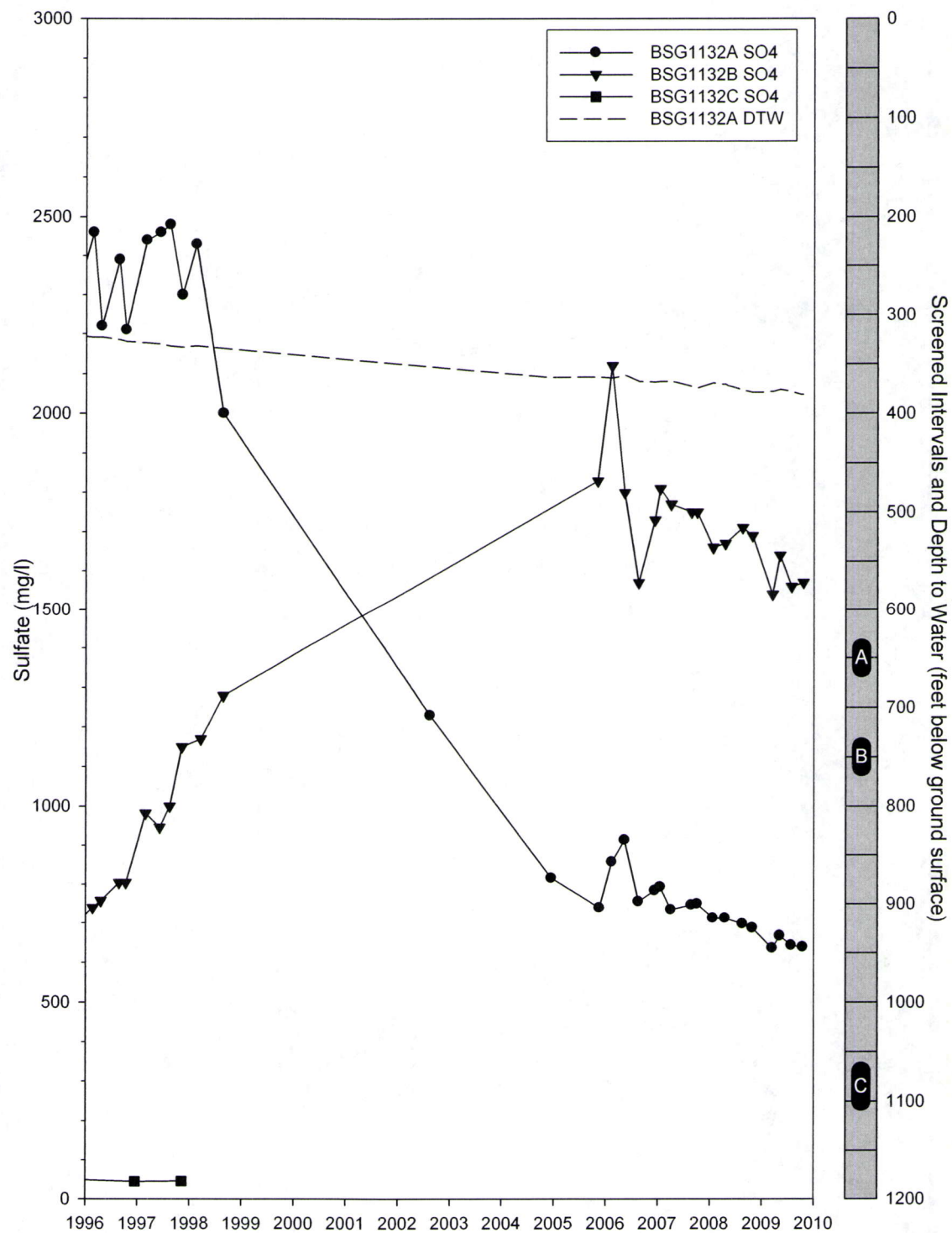
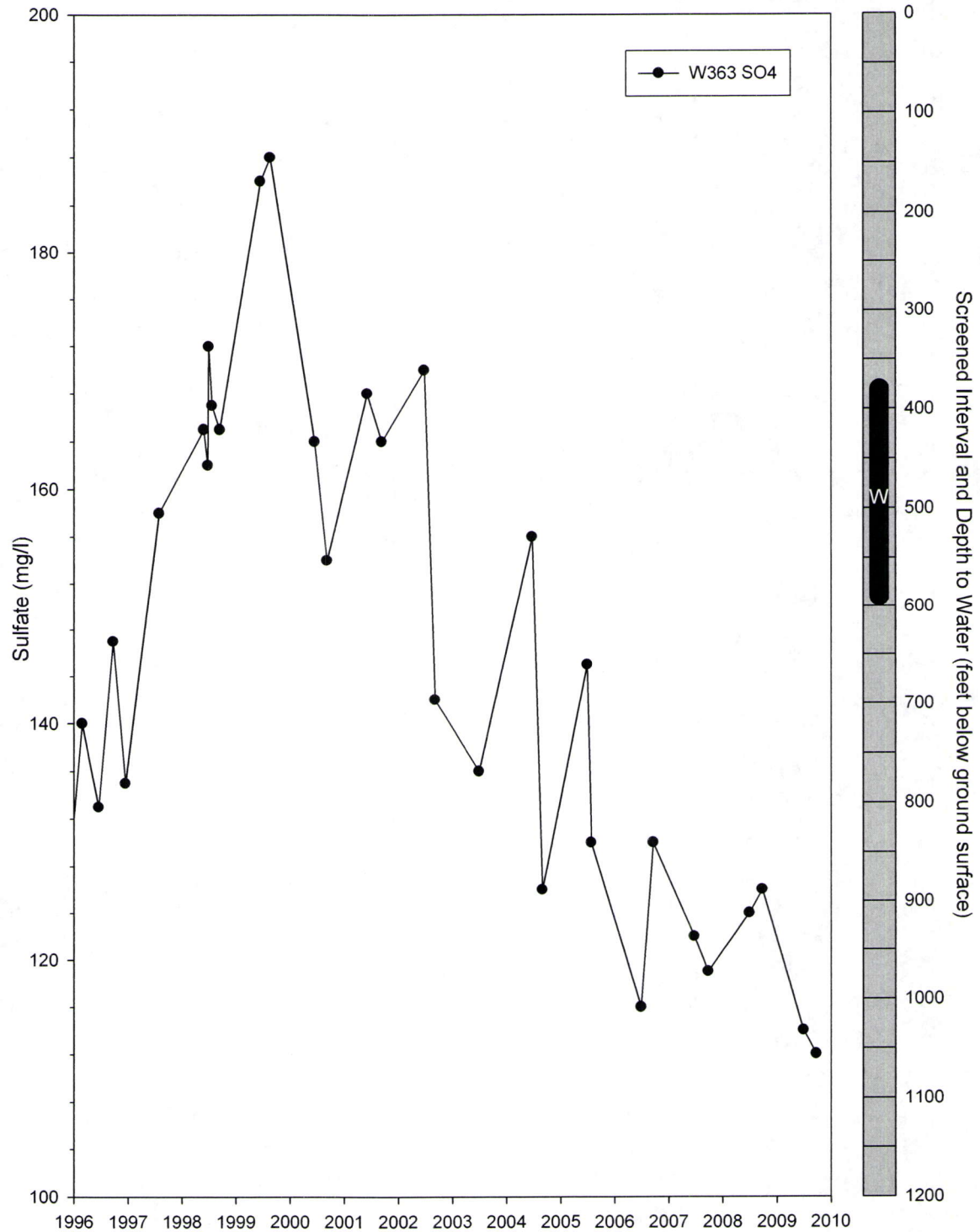




Figure 4-28 Time-Series Plot of Sulfate in W363 (See 4.1.4)



**Figure 4-29 Time-Series Plot of Sulfate WJG1154A, B, and C (See 4.1.4)**

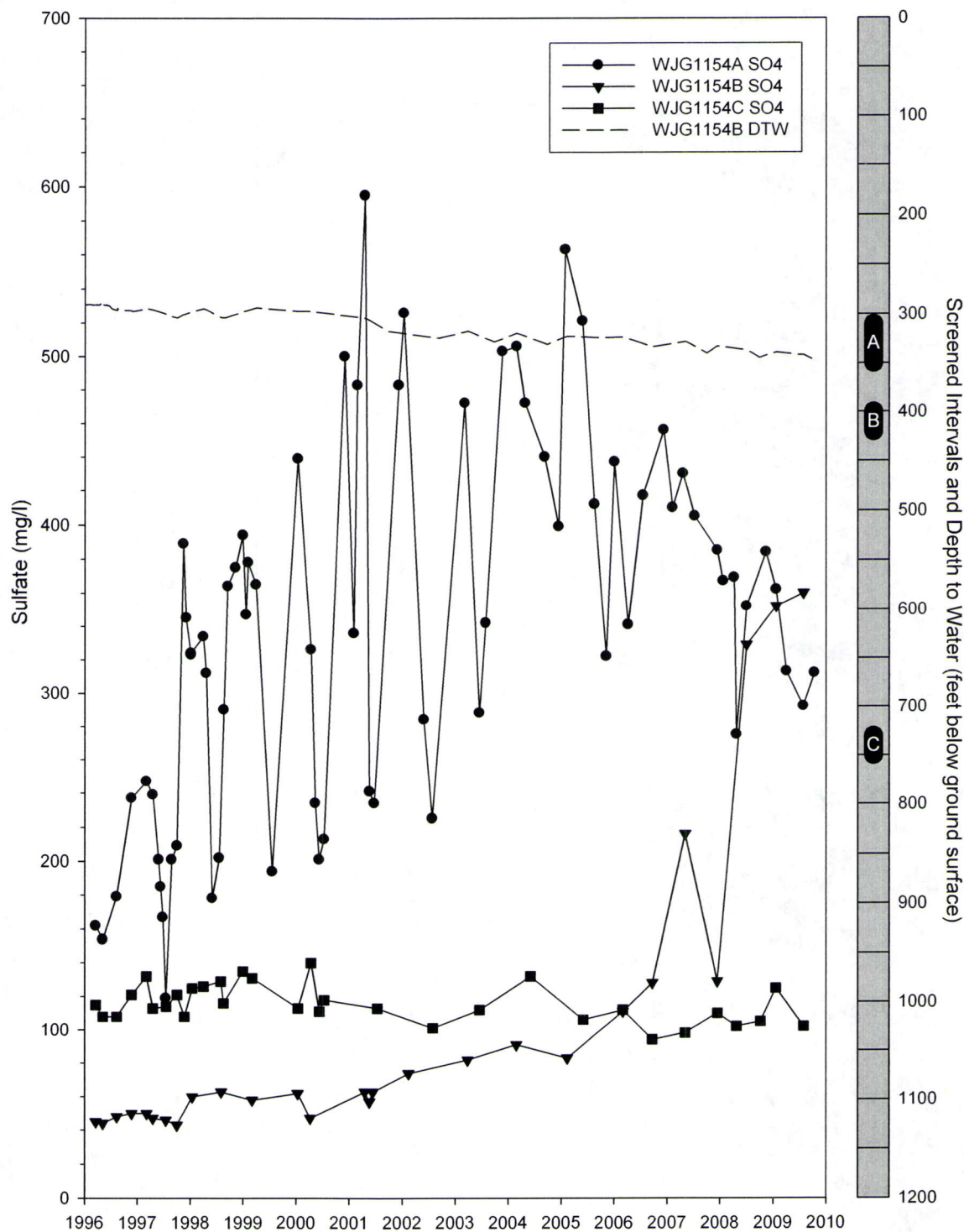
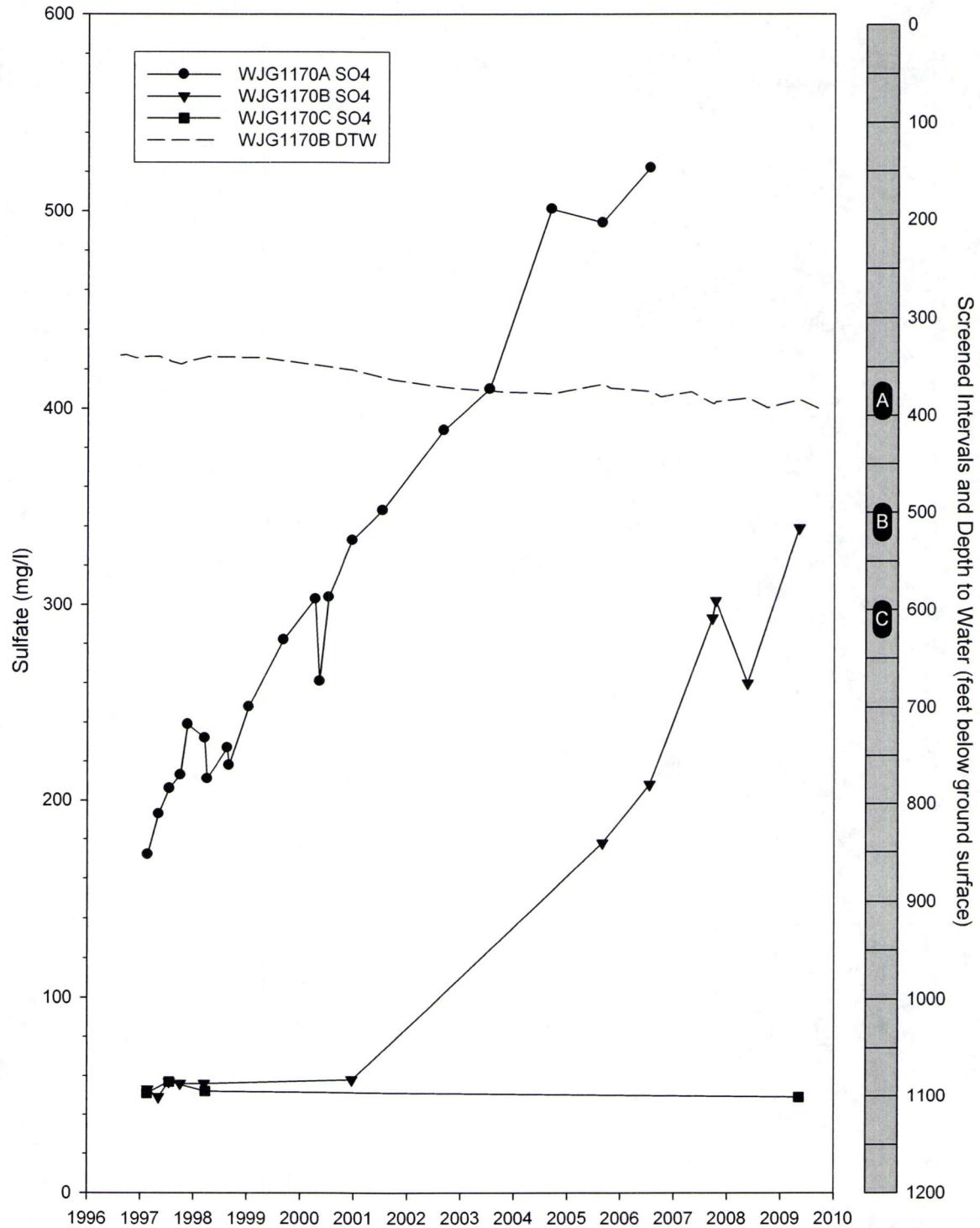
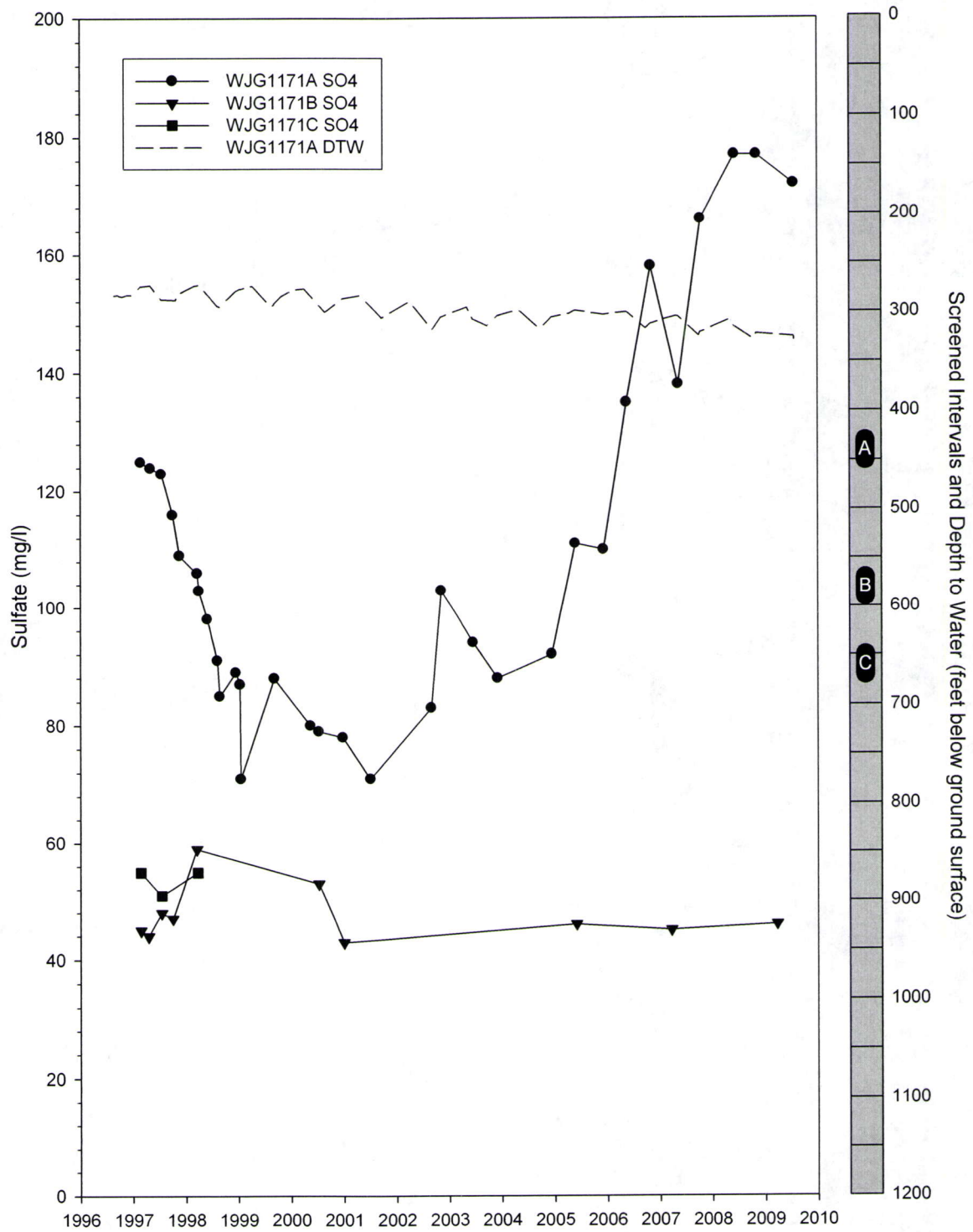


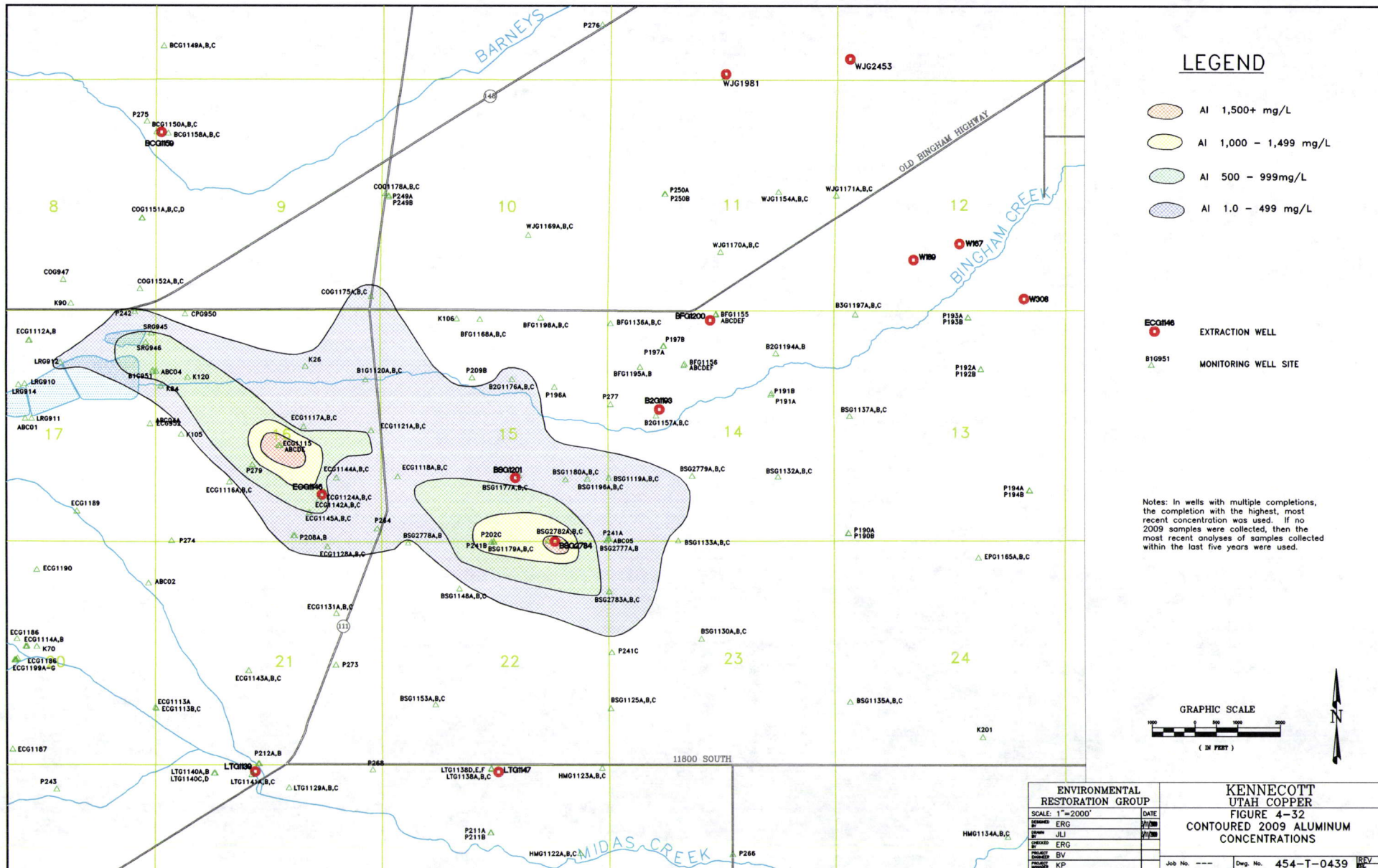
Figure 4-30 Time-Series Plot of Sulfate in WJG1170A, B, and C (See 4.1.4)





**Figure 4-31 Time-Series Plot of Sulfate in WJG1171A, B, and C (See 4.1.4)**





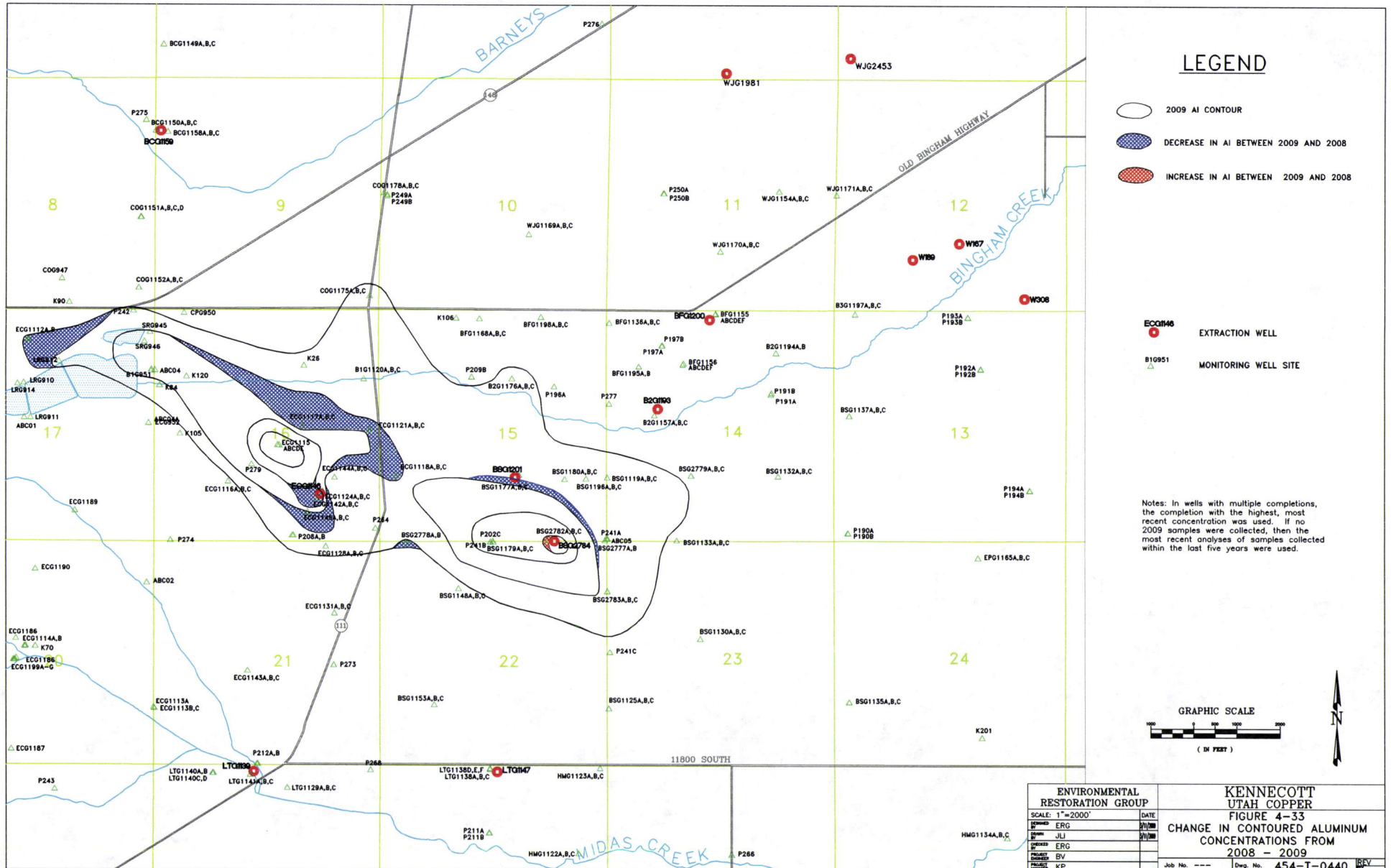
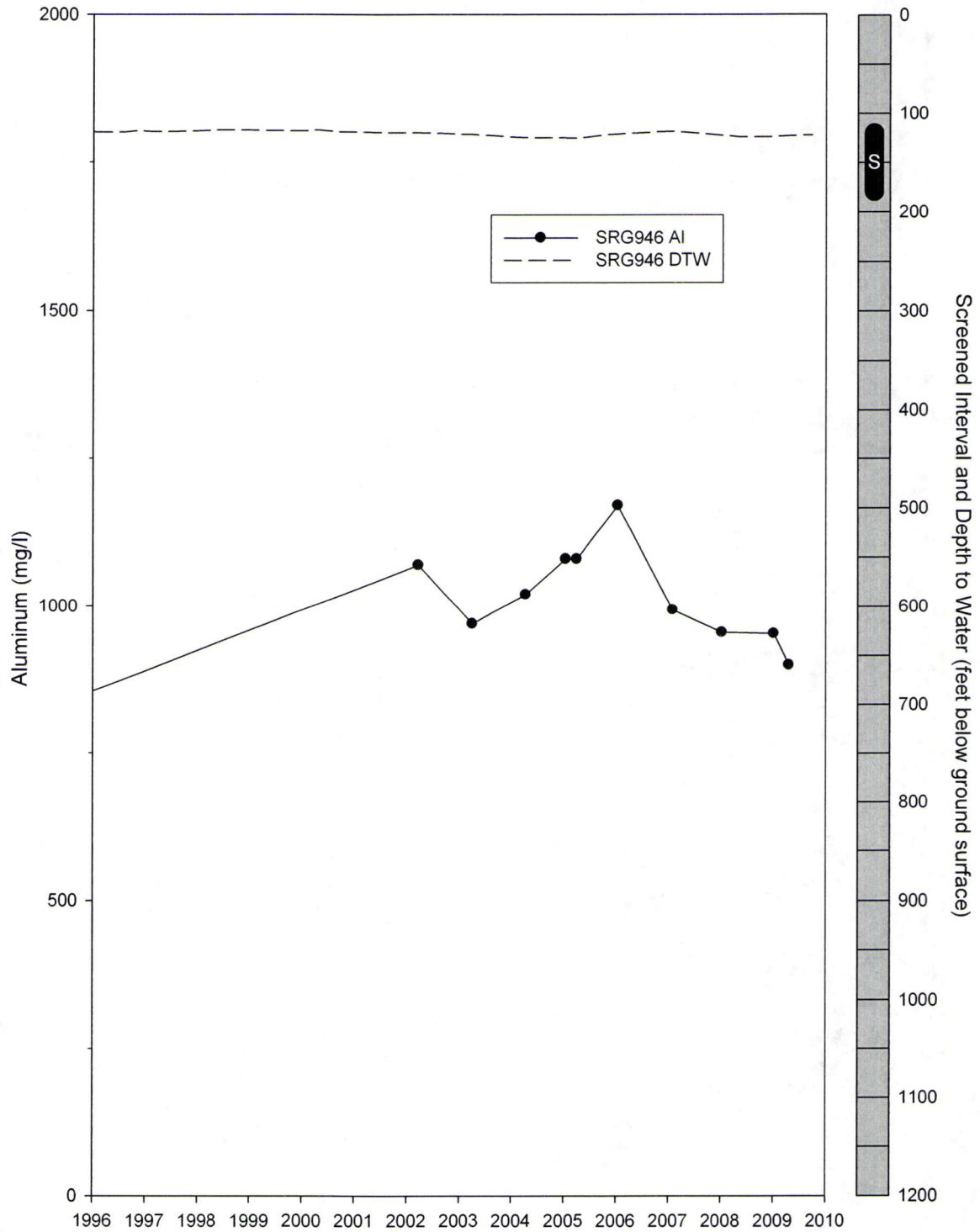
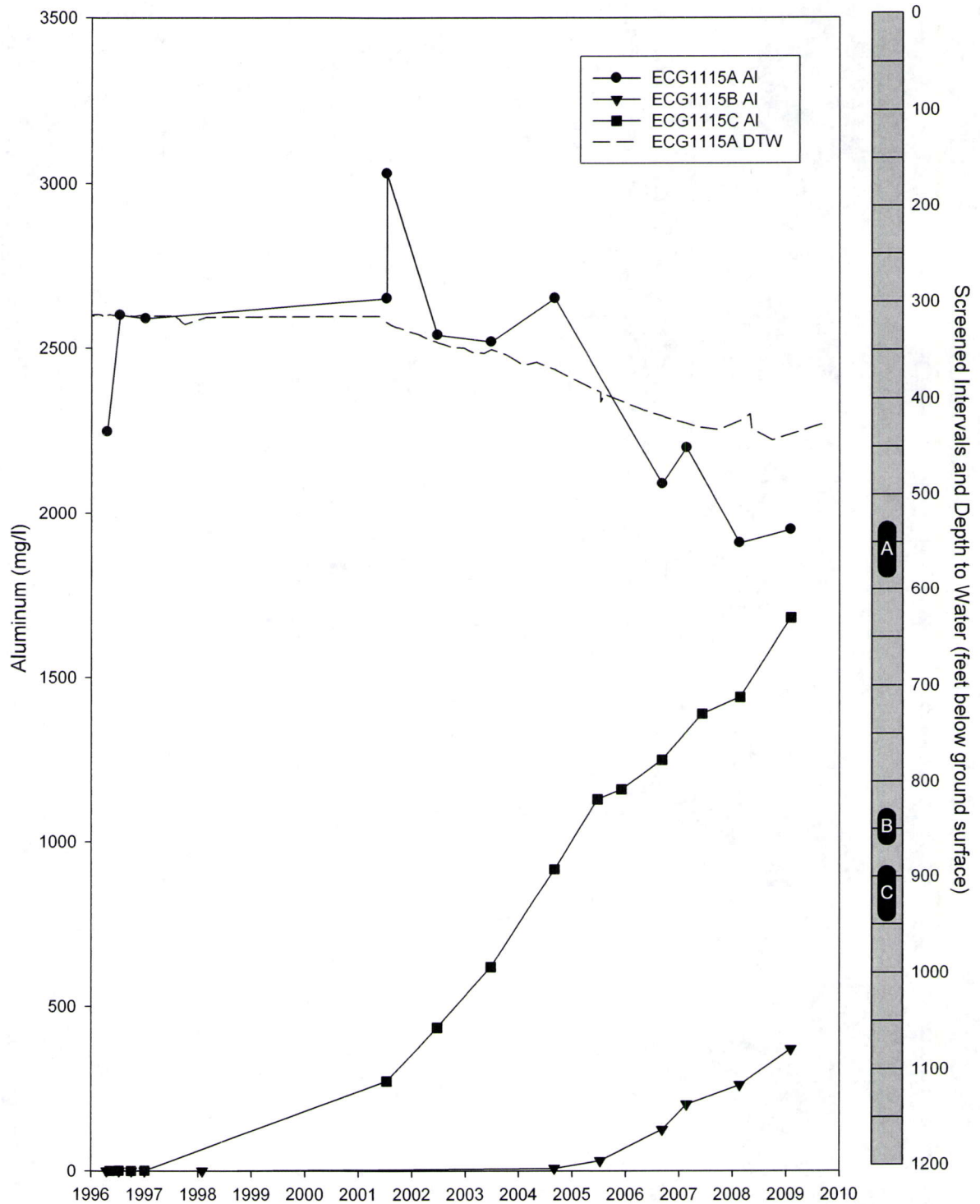




Figure 4-34 Time-Series Plot of Aluminum in SRG946 (See 4.2)



**Figure 4-35 Time-Series Plot of Aluminum in ECG1115A, B, and C (See 4.2)**



**Figure 4-36 Time-Series Plot of Aluminum in ECG1146 and ECG1124A, B, and C (See 4.2)**

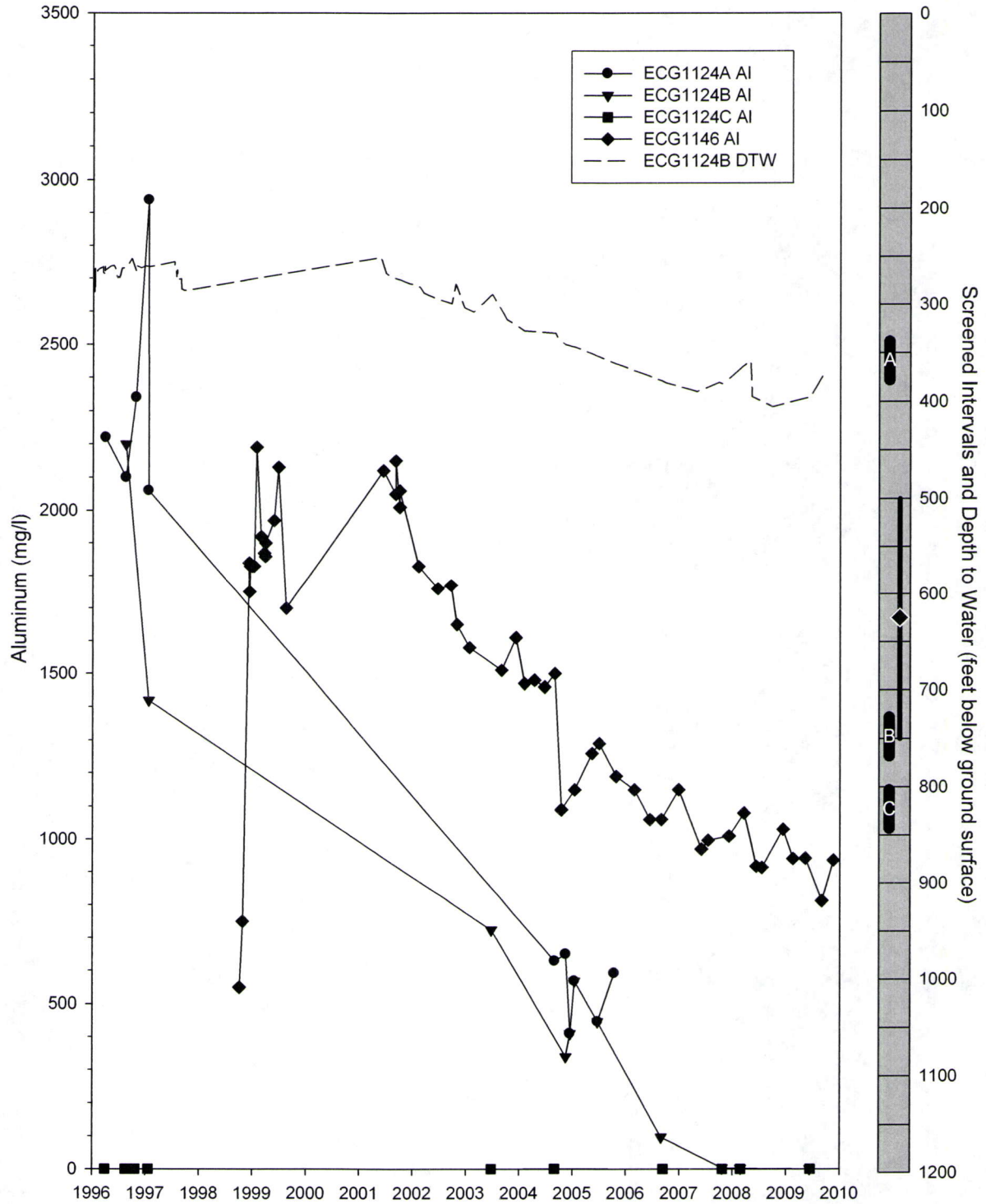
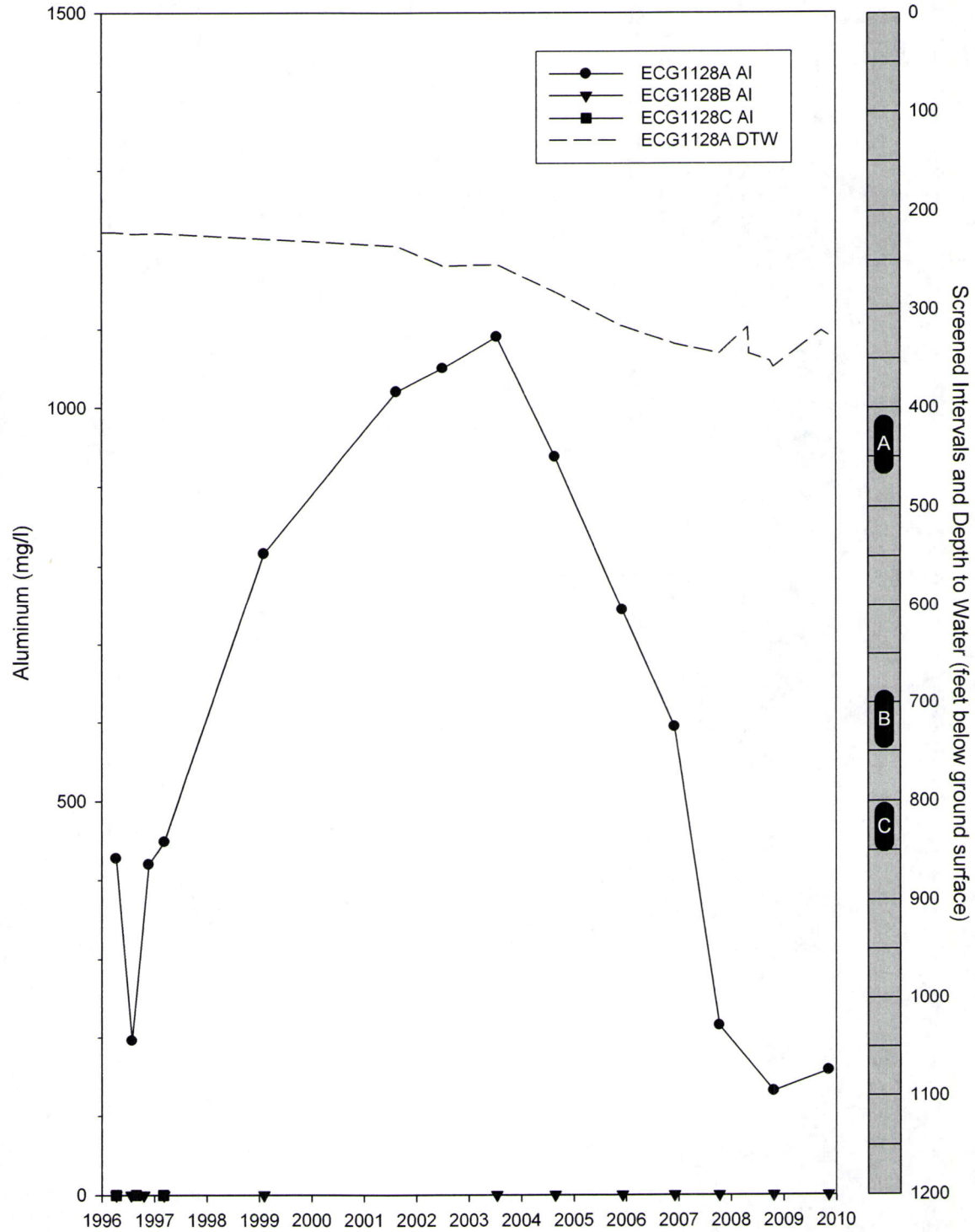




Figure 4-37 Time-Series Plot of Aluminum in ECG1128A (See 4.2)



**Figure 4-38 Time-Series Plot of Aluminum in ECG1118A, B, and C (See 4.2)**

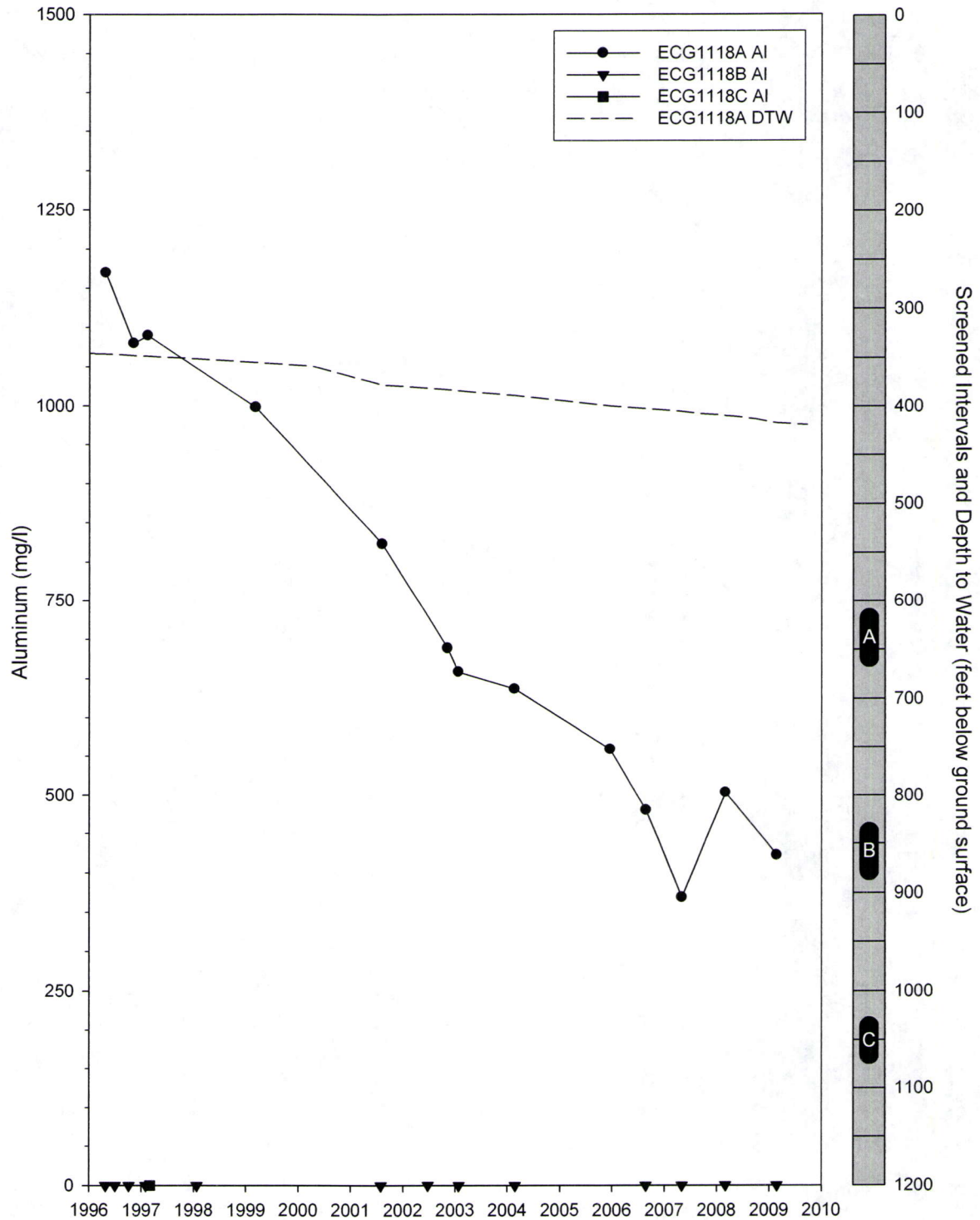
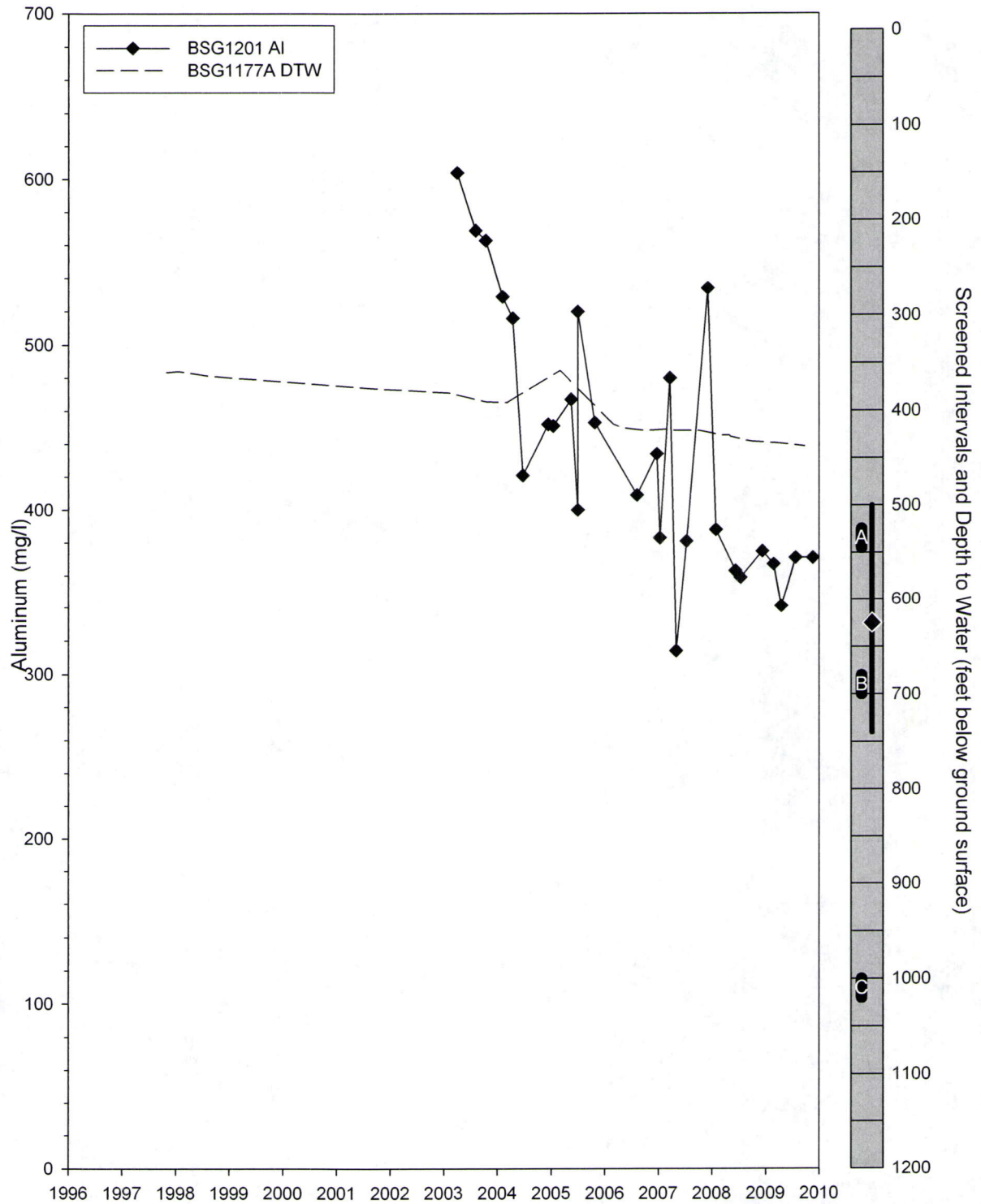


Figure 4-39 Time-Series Plot of Aluminum in BSG1201 (See 4.2)





**Figure 4-40 Time-Series Plot of Aluminum in BSG2782A, B, and C and BSG2784 (See 4.2)**

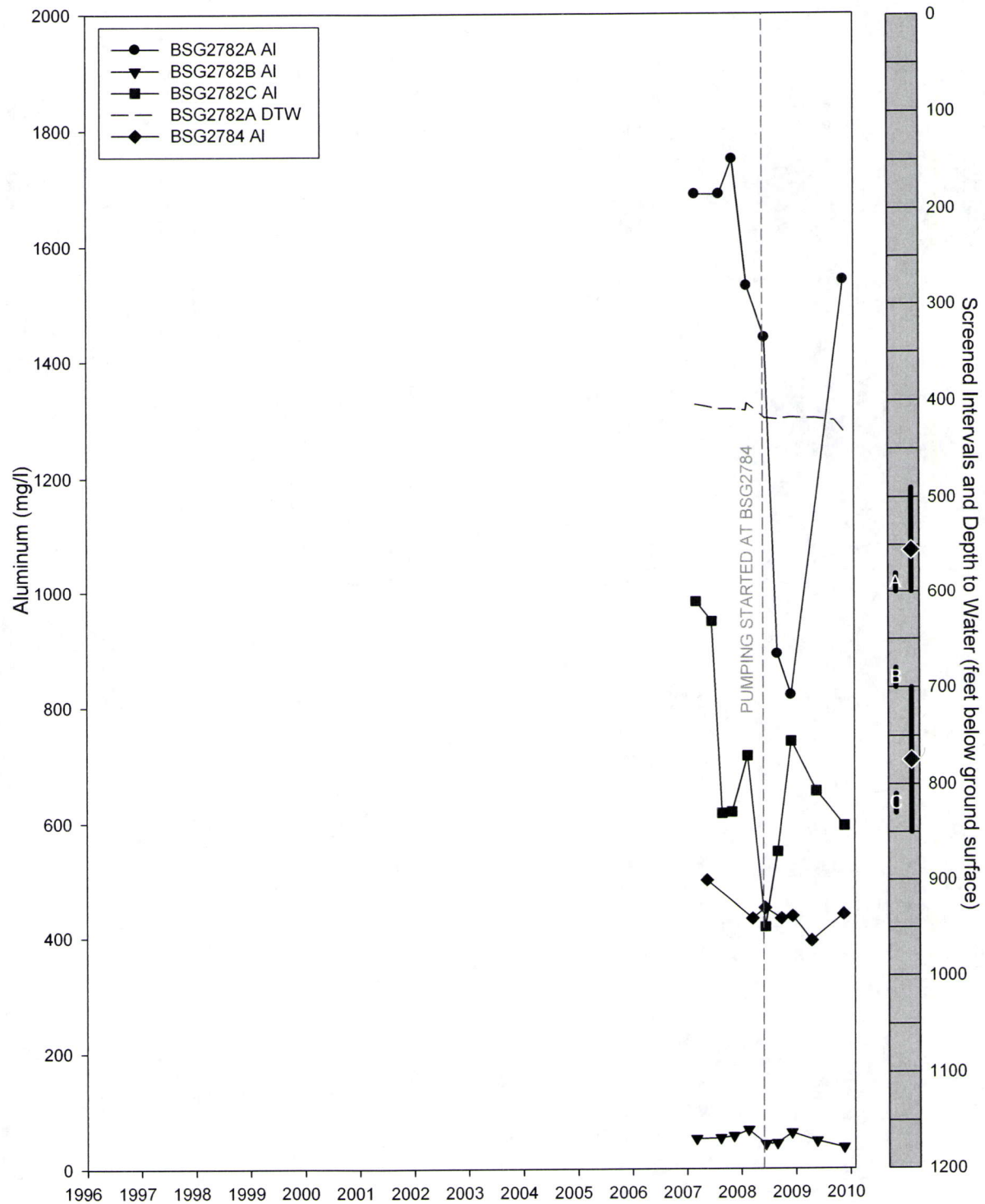
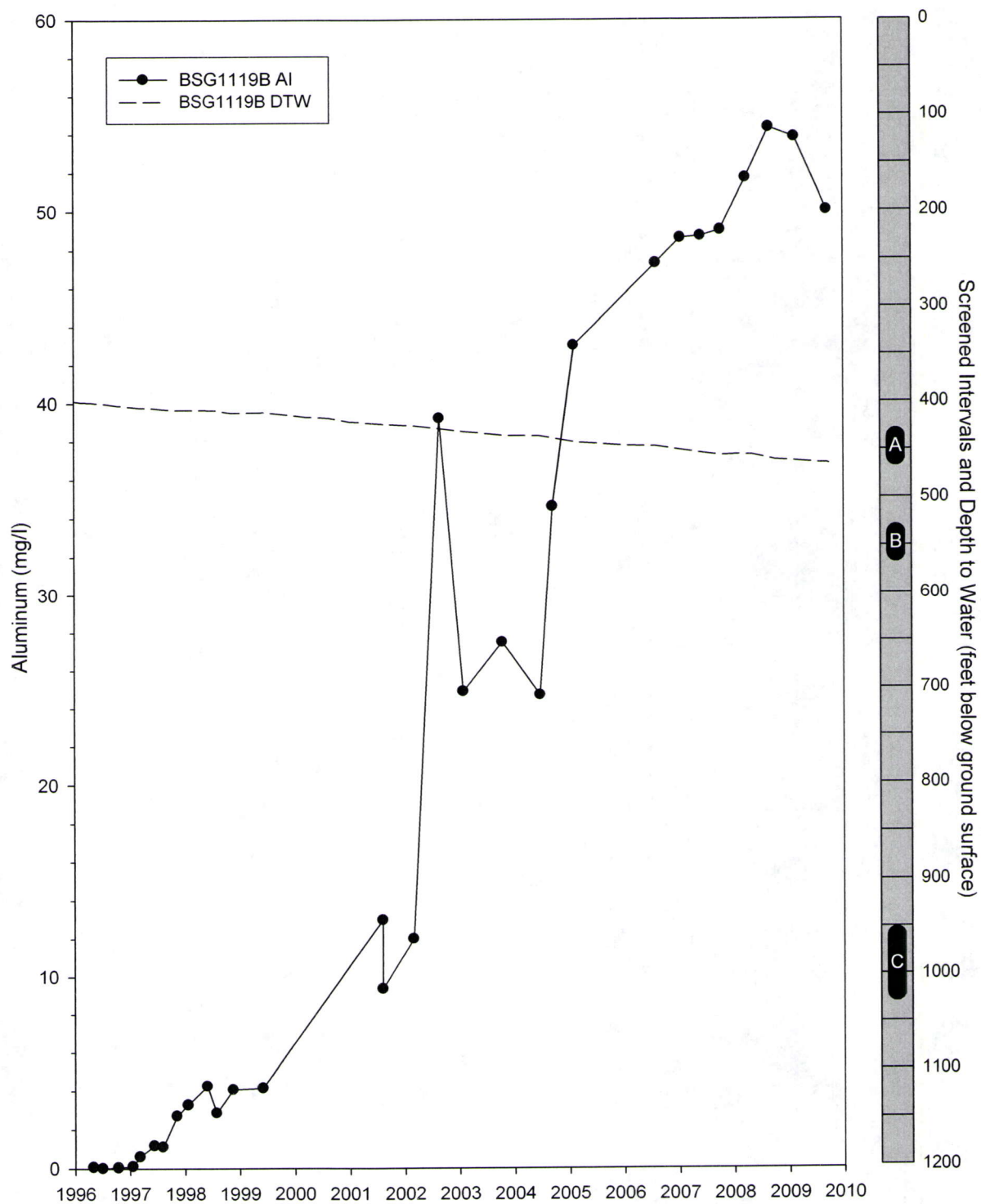
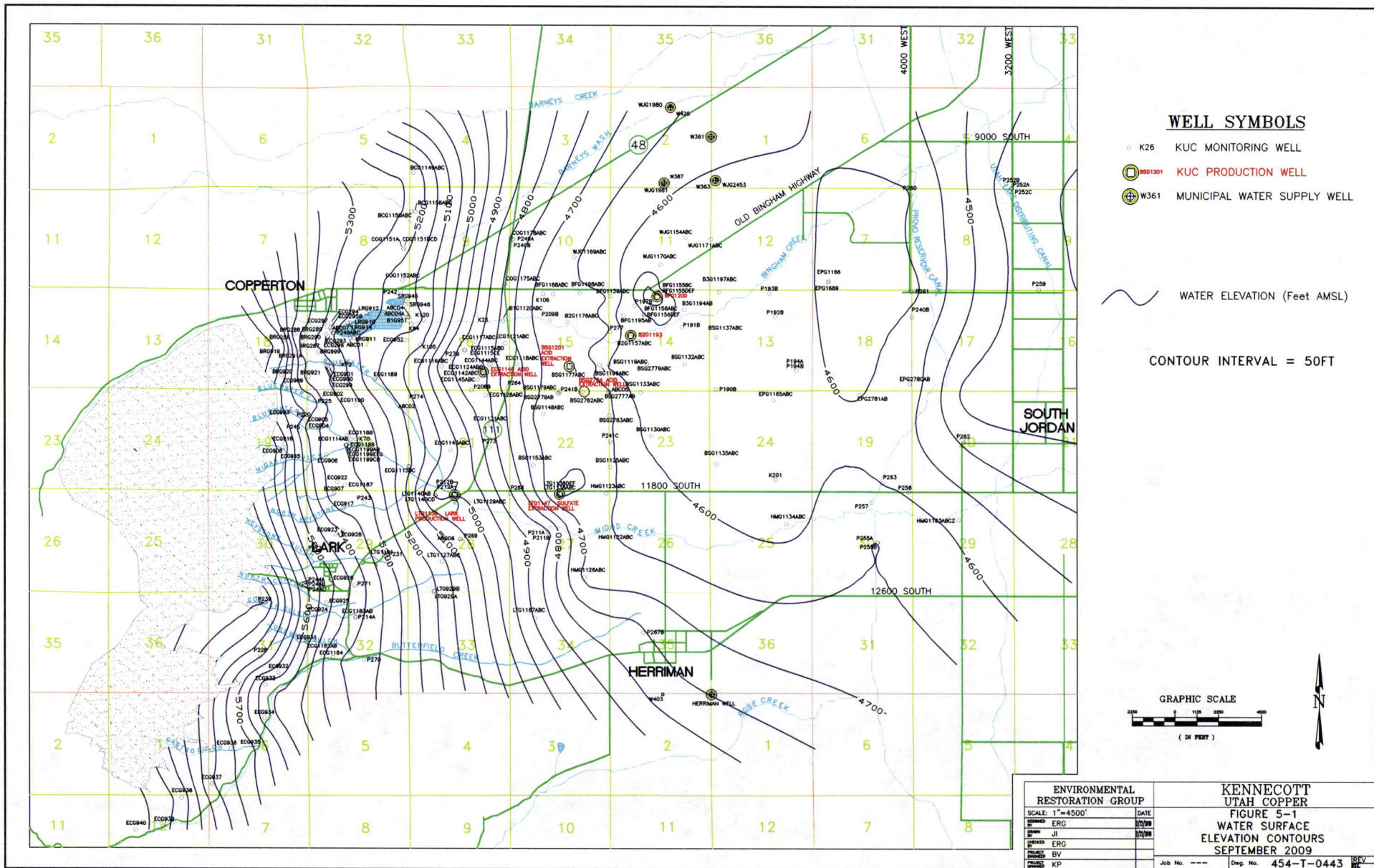
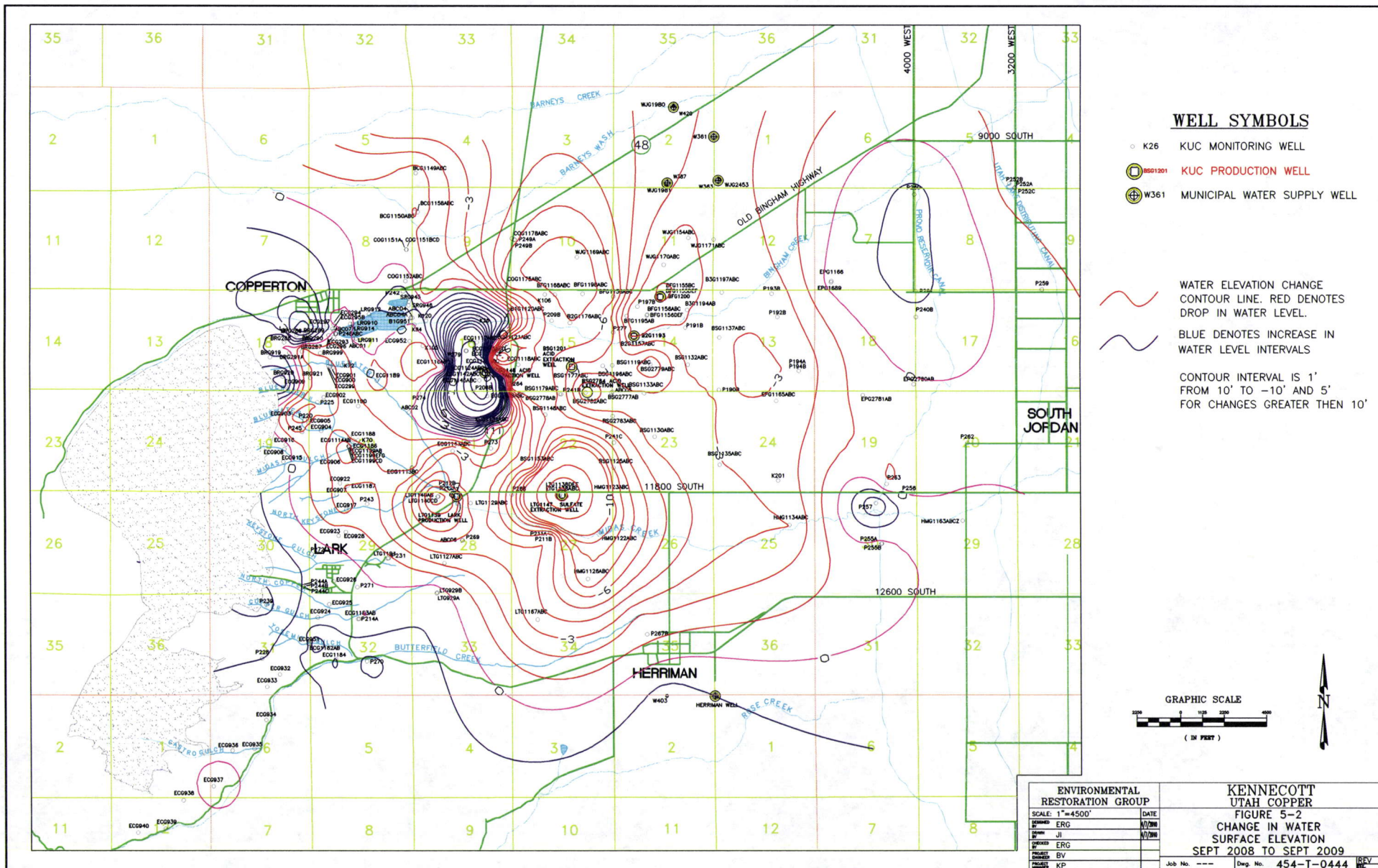


Figure 4-41 Time-Series Plot of Aluminum in BSG1119B (See 4.2)

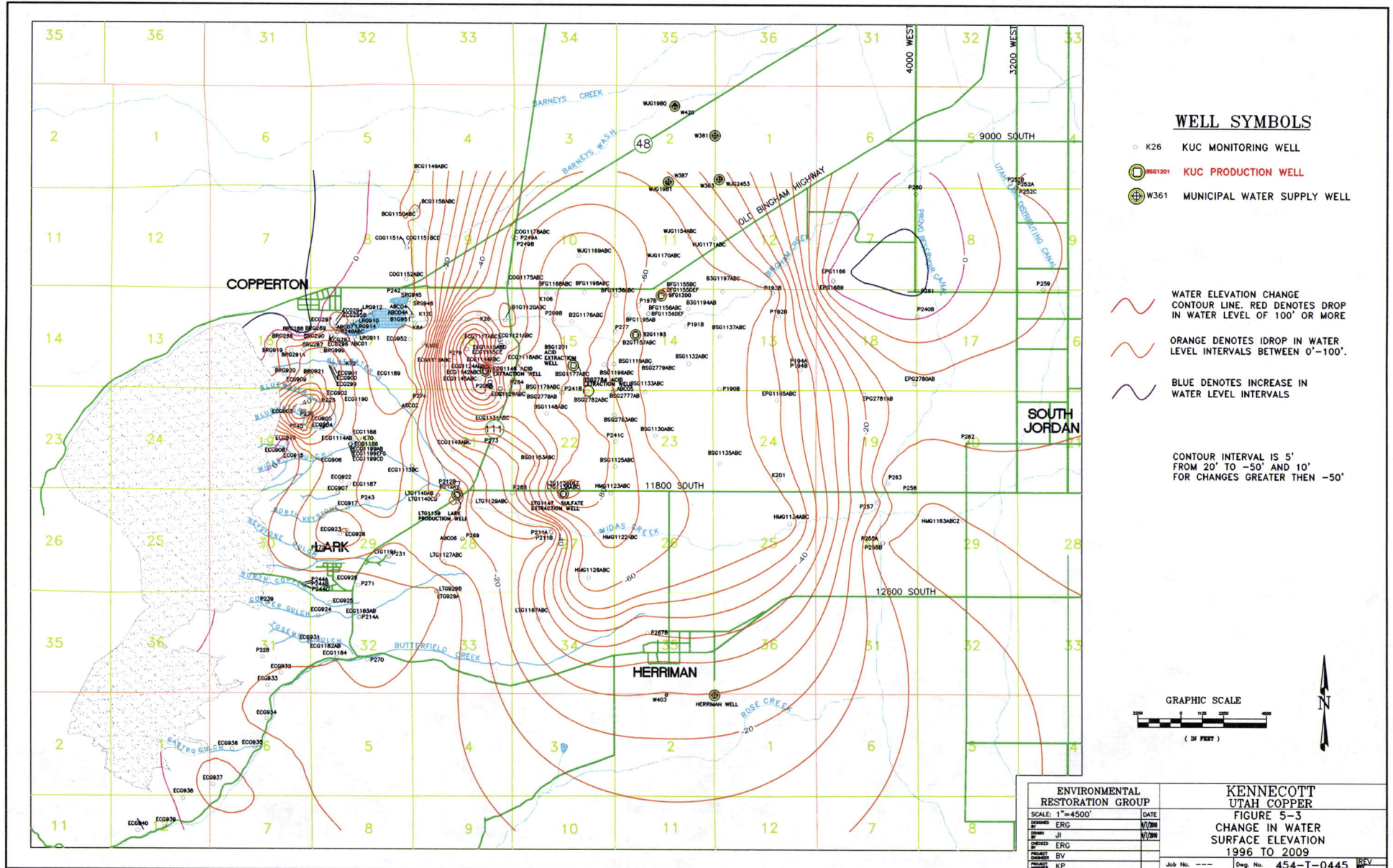












## 6. Subsidence

KUC measures ground surface elevation in Zone A to assess possible ground subsidence caused by groundwater extraction from the plume area. KUC monitored ground elevation at eight survey sites in May 2009.

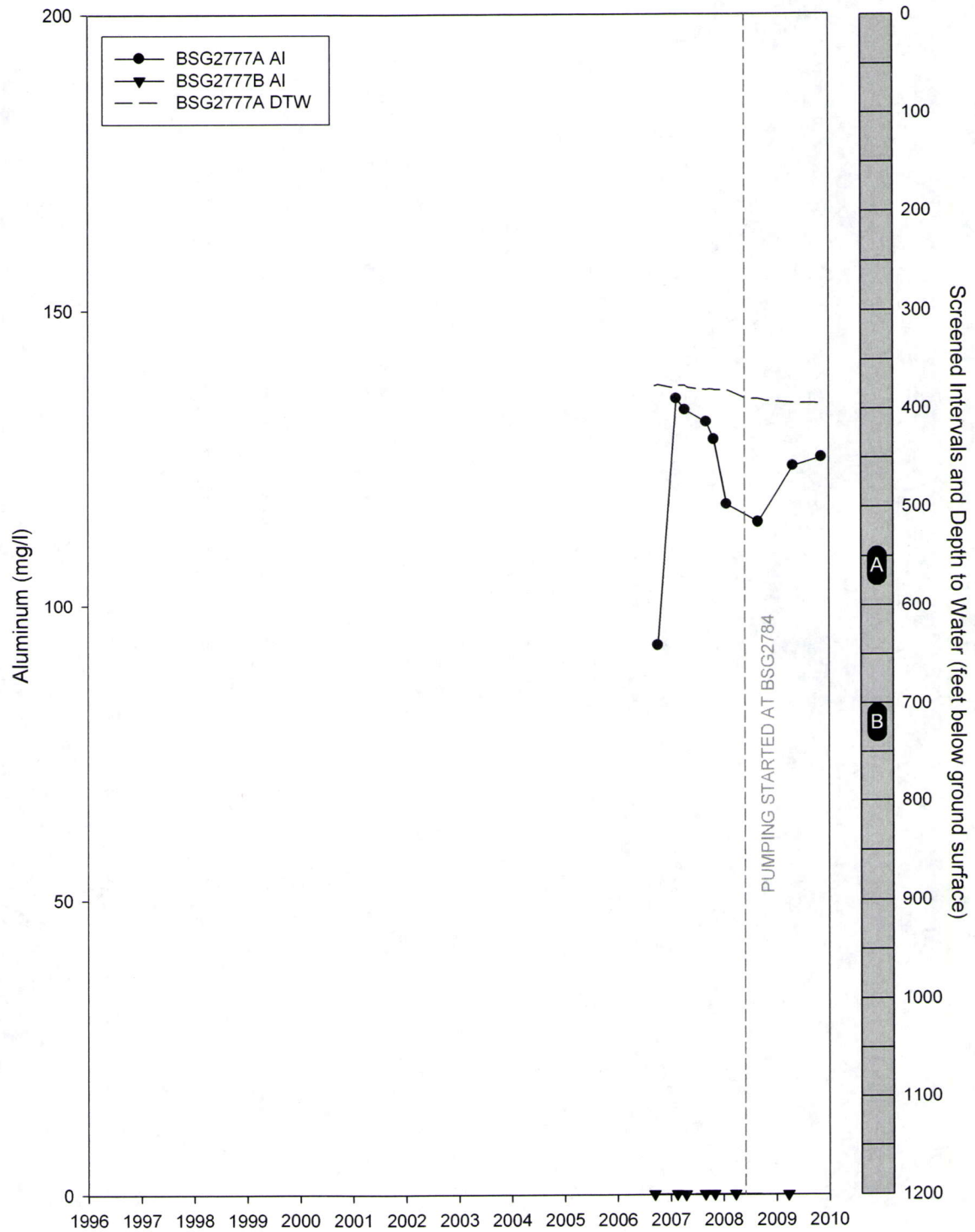
The specific well sites selected for survey control are shown on Figure 6-1 and located as follows: western edge of the acid plume area (K105 and ECG1116); in the acid plume and adjacent to the west-most acid extraction well (ECG1124); 1,000 feet east of the eastern acid extraction well (BSG1180); and three wells (BSG1137, BFG1156a and WJG1170) within a 4,500 foot radius of the two sulfate extraction wells (B2G1193 and BFG1200) located north of Bingham Creek. The monitoring well sites (survey locations) located near the acid and sulfate extraction wells also coincides with the greatest observed decrease in water elevation. Each well has a cement pad that surrounds the steel surface casing and each pad has a steel bolt cemented into it. The steel bolt was the survey point for six of the wells. The seventh well (K105) was surveyed on top of the steel surface casing. The land survey monument measured in 2009 and in previous years is called 1973 West, located near the northwest corner of Section 15, in Township 3 South, Range 2 West, which is on the northern edge of the plume area.

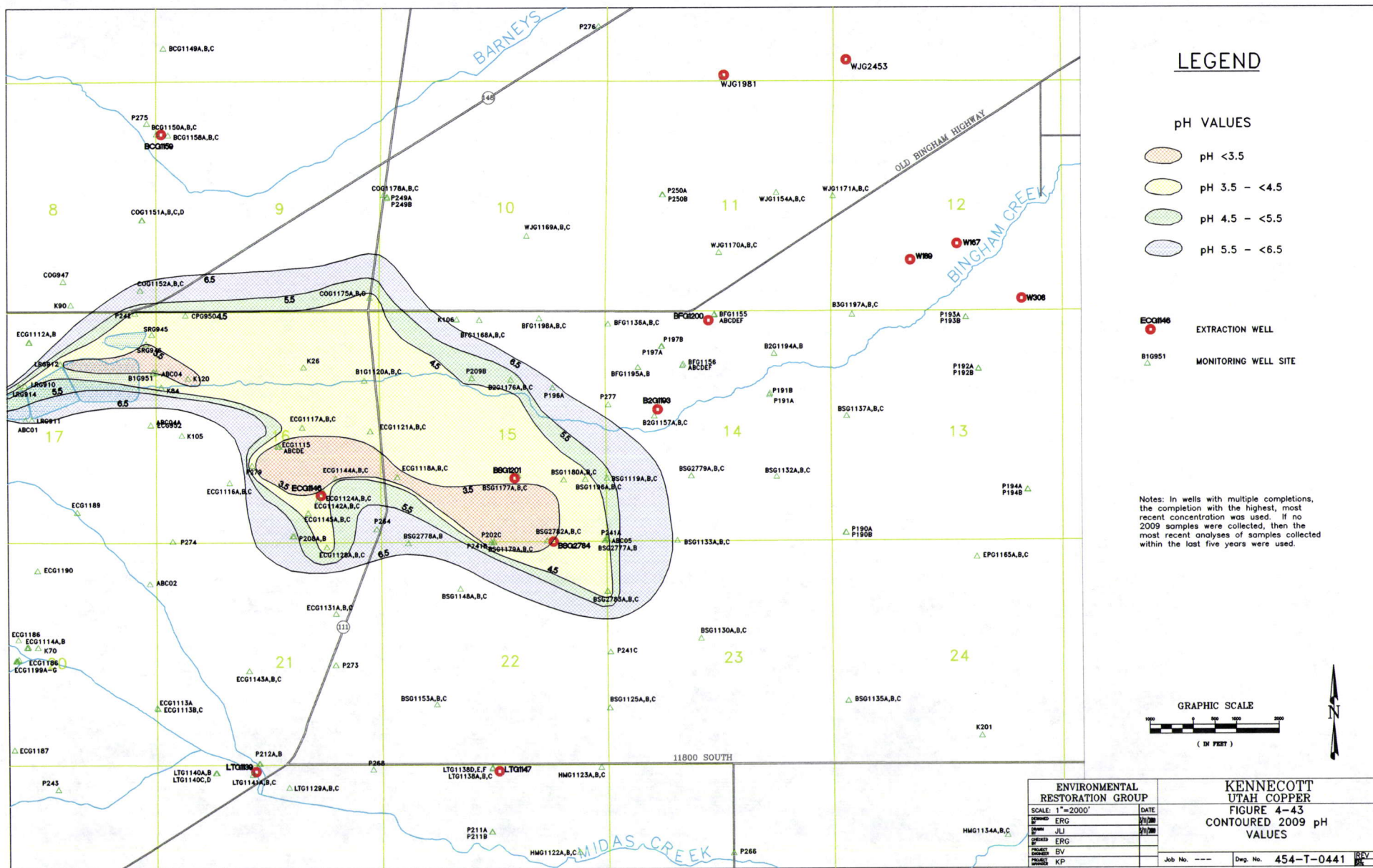
The sites were surveyed using a global positioning system (GPS) unit (Leica System 530). The degree of accuracy of this GPS unit is approximately 0.25 centimeters (0.098 inches or 0.008 feet). The survey data utilize NAD83 (North American Datum of 1983) and NAVD88 (North American Vertical Datum of 1988).

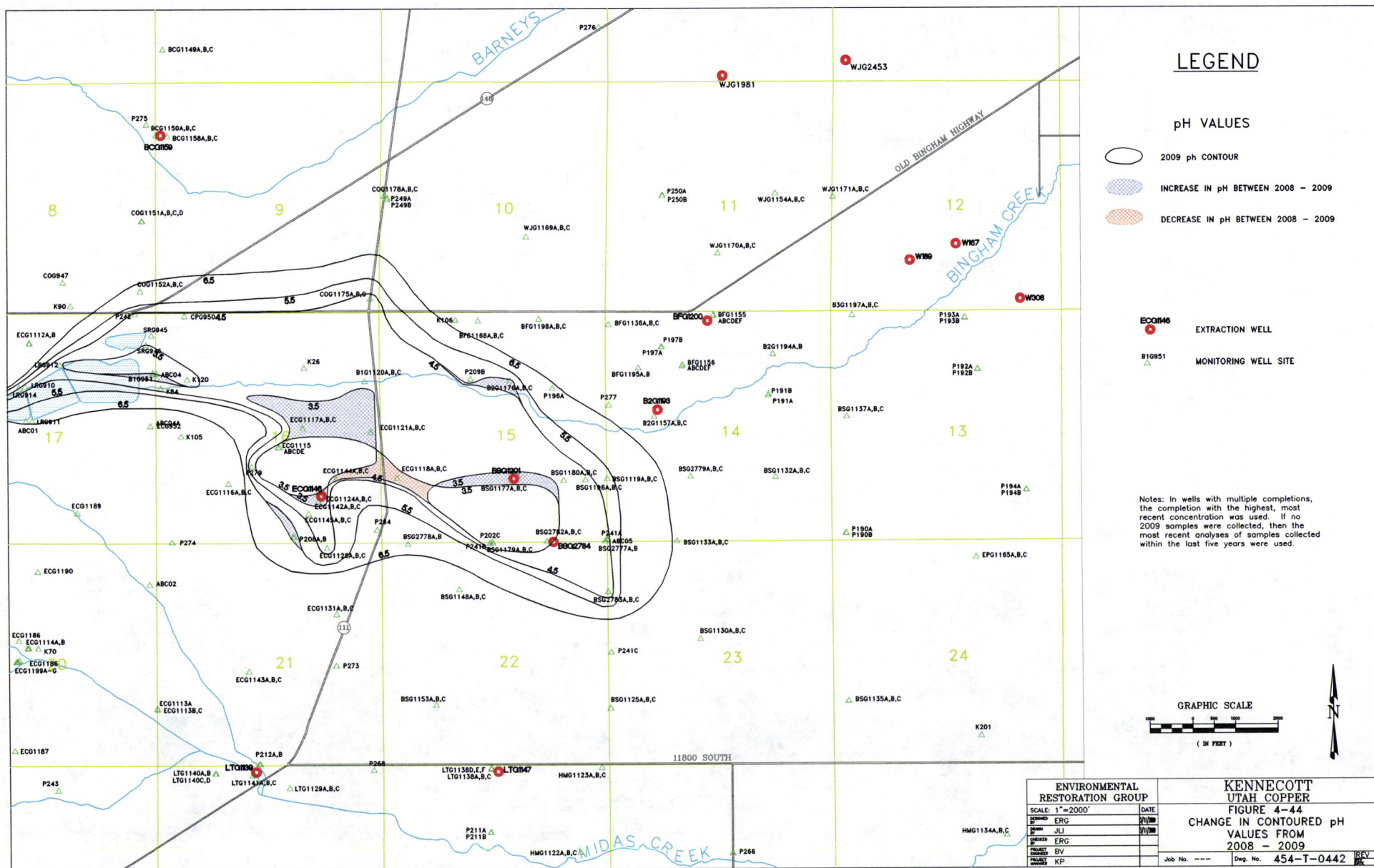
Ground elevation measurements over time are reported in Table 6-1 and shown on Figure 6-2. Small variations in elevation measurements are attributed to variability inherent in measurement systems. There are no ground elevations changes that KUC attributes to groundwater-extraction induced subsidence.



**Figure 4-42 Time-Series Plot of Aluminum in BSG2777A and B (See 4.2)**









## 5. Groundwater Elevation

KUC performs annual water level measurements at about 195 wells in the greater Zone A area during September through early October. KUC uses the water level data to monitor the response of the alluvial groundwater system to ongoing aquifer remediation activities and nearby municipal groundwater extraction. These data also provide insight into the relationship between groundwater recharge, storage, and discharge in the principal alluvial aquifer system.

The results of the water level measurements for 2009 are presented in Appendix B. These water level measurements were corrected for fluid density effects on potentiometric head. Groundwater with elevated total dissolved solid concentrations has a higher specific gravity than do fresh waters. Consequently, corrections to measured water levels were performed to convert the measured hydraulic heads to equivalent fresh-water hydraulic heads. In most portions of the aquifer, where TDS concentrations are moderate, the density corrections applied to water levels are small, generally less than one foot. In areas where groundwater TDS concentrations are elevated appreciably, such as within the plume core, the density corrections may be on the order of several feet.

### 5.1 Groundwater Gradients

A contour map of water level elevations in the upper portion of the alluvial aquifer in the Zone A plume area for September 2009 is presented on Figure 5-1. Data from pumping wells were omitted from the contouring dataset unless the well had not been pumped for a sufficient amount of time for the water level to recover from localized pumping effects. Some wells along the western margin of the alluvial aquifer that are screened in shallow bedrock were also used in the creation of the water level contour maps. The contour lines shown in Figure 5-1 were generated using the computer program Surfer 8 by Golden Software, Inc.

As shown on Figure 5-1, the hydraulic gradient in the upper portion of the alluvial aquifer is from upland recharge areas in the west toward lower elevation regions to the east, nearer the center of the southwestern Jordan Valley. The hydraulic gradient in the alluvial aquifer is steep (approximately 0.056 or 300 feet per mile) from the east side mine waste-rock dumps to approximately 1,700 feet east of Highway 111. The groundwater gradient then flattens considerably for a distance of approximately 4,000 feet eastward before again becoming appreciably steeper to the west of KUC's barrier wells (B2G1193 and BFG1200). The gradient is again flatter from the production wells east to eastern margin of Zone A plume area with a gradient of about 0.005 (40 feet per mile). The variability in the hydraulic gradient may be due in part to lateral heterogeneity in hydraulic conductivity of the alluvial sediments in the basin, as was observed during KUC well drilling activities in the area.

The influence of groundwater pumping from KUC's production wells is apparent in deflections of the contour lines near the KUC production wells. The water level contours show a general deflection for a relatively large area at and upgradient of acid extraction well ECG1146, in the western portion of the acid plume, indicating that water from that area is being captured at ECG1146.

The other area showing a deflection of the water contours is centered near extraction wells BFG1200 and B2G1193. Both wells were pumped at a relatively steady rate in 2009. This area along with the West Jordan Well Field depicts a large area of ground water extraction. West Jordan regularly pumps their three wells during the months of May through September, depending on water needs. This same area has experienced heavy pumping for a number of years.

Extraction well LTG1147 was pumped for most of 2009 and LTG1139 was pumped less than 4 months during 2009, mostly in the first half. Both are located along 11800 South. A relative large deflection in the water level contours is especially apparent at LTG1147.

Large vertical hydraulic gradients were generally not observed in the Zone A plume area (away from pumping wells) during 2009. Moderate vertical gradients were observed in some localized areas. The lack of appreciable vertical hydraulic gradients is consistent with the generally unconfined condition in the alluvial aquifer system in the project area.

## **5.2 One-Year Water-Level Elevation Changes**

A map showing the contoured change in water levels in the upper portion of the alluvial aquifer system in the greater Zone A area between September 2008 and September 2009 is presented on Figure 5-2. For zones of increasing and decreasing water levels, changes were contoured on one-foot intervals from 0 to 10 feet of change and 5 feet intervals for changes of more than 10 feet.

Water levels as measured from September 2008 to September 2009 along the Eastside Collection and Butterfield Canyon have generally declined 0 to 3 feet. Water level declines are attributed to limited recharge and from pumping east and down-gradient from these areas.

Notable water level increases of up to 6 feet near the mouth of Bingham Canyon and up to 1 foot at the mouth of Butterfield Canyon. Near Bingham Canyon, the increase is likely due the localized recharge of meteoric precipitation in Bingham Canyon and due to less extraction of ground water upgradient of the waste rock dumps in Dry Fork Canyon. KUC has added another extraction well in the mouth of Bingham Canyon to assist with alluvial extraction for this area and this likely will cause decreased water levels during 2010 and forward. In Butterfield Canyon, the slight increase is attributed to the above normal precipitation that occurred in late spring during 2009.



Comparison of select spring water levels with fall water levels in individual wells indicates notable seasonal variability in areas along the western margin of the alluvial aquifer, demonstrating the influence of the annual recharge event to water levels in the alluvial aquifer. Appreciable seasonal fluctuations in water levels in wells further eastward are generally not apparent.

Water levels in the Bingham reservoirs area did not significantly change from September 2008 to September 2009. Monitoring wells located immediately upgradient of the reservoirs all decreased less than one foot, which include P248A, B and C along with LRG910, LRG911 and LRG912. Water levels north of the reservoir system increased less than 1 foot for September 2008 to September 2009.

Between September 2008 and September 2009, water levels in the western portion of the acid plume, in the vicinity of acid extraction well ECG1146, increased from 1 to 36 feet. This dramatic increase was due to the partial-year pumping at ECG1146 and the timing of the water levels measurements (September 2009). ECG1146 was not pumping from mid-July through the time when the water levels were measured. ECG1124B, the monitoring well closest to the extraction well increased by 36 feet and wells more distal such as ECG1117A increased by 16 feet; K120 increased by 1.4 feet. Water levels in monitoring wells completed below the highly contaminated portions of the aquifer in the ECG1146 area ranged from a decrease of 6.07 ft at ECG1118C to an increase of 30.53 ft at ECG1145C.

Water levels continued to decline in the eastern portion of the acid plume area near acid extraction wells BSG1201 and BSG2784 from September 2008 to September 2009. Pumping was relatively continuous for BSG1201 in 2008-09 and BSG2784 was pumped for about 2 months in 2009. Monitoring wells within one-quarter mile of the two acid extractions wells and within the principal alluvial aquifer showed the water declining between 1 to 6 feet. Effects of pumping both acid wells for this area appears to have caused a fairly consistent water decline within a quarter mile upgradient and adjacent to the extraction wells. These monitoring wells including BSG1148A and B, BSG1177A, B and C, BSG1179A, B and C, BSG1180B and C, BSG1196B and C, BSG2777A and B, BSG2782A, B and C and BSG2783A B and C all show a decline of 2 to 6 feet. Certain monitoring wells, including WJG1169A, COG1175A, B2G1176A and COG1178A, all located more than half a mile northerly from BSG1201, show water levels declines of 5 to 7.66 feet. Monitoring wells P273 and BSG1153A and B, located about three quarter mile southwest of extraction well BSG1201 showed declines of 1 to 6 feet. BSG1119B, located on the leading edge of the acid plume showed decline 4.29 feet.

For the barrier well area, water levels in the immediate vicinity of extraction wells B2G1193 and BFG1200 decreased generally 3 to 6 feet from September 2008 to September 2009. These changes are due to the continuous extraction from the two KUC wells and continued seasonal extraction by West Jordan. Monitoring well BFG1136B, located approximately 2,350 feet northwest of extraction well B2G1193 had the largest water level decline for this area at 6.49 feet which was the only level



for this area that declined by more than 6 feet. At locations further north from B2G1193 and BFG1200, including the West Jordan well field area, water levels declined from 1 to 4 feet between September 2008 and September 2009. Water levels in the barrier well LTG1147 area, which was pumped for most of 2009, declined 2 to 29 feet. Monitoring wells immediately adjacent to LTG1147 declined by 29 feet and sites located one-half mile radius from LTG1147 declined by 2.5 to 10 feet.

Water levels in the BSG1139 clean water extraction well area responded from September 2008 to September 2009 to the partial-year pumping with wells upgradient declining from 2 to 15 feet and wells downgradient declining 2 to 18 feet.

KUC's monitoring at four wells indicates water level changes in the Herriman area from September 2008 to September 2009. Three sites showed a declining water table and one increased. LTG1167A, located approximately one mile northwest of Herriman, declined 3.61 feet; P267B and HMG1856, located on the northwest edge of Herriman, declined 1.36 ft and 1.8 feet respectively; and W403, located one-quarter mile south of Herriman rose 1.5 feet.

KUC measures water levels for more than 12 monitoring wells in the western portion of Zone B including the Daybreak area extending to about 2200 West. From September 2008 to September 2009, water levels for this area varied by up to 2.5 feet with two exceptions. The water level at P255B dropped 4.65 ft and at P257, the water level increased 3.28 ft.

### **5.3 Water Level Changes from 1996 to 2009**

Figure 5-3 shows changes in water levels in the upper portion of the alluvial aquifer system from 1996 to 2009. Data from 1996 used to create this map are reported in Appendix B. The year 1996 represents the initiation of remedial pumping at extraction well ECG1146, and Figure 5-3 shows, in part, the long-term effects of remedial pumping on the alluvial aquifer system. However, multiple hydrodynamic stressors influence water level changes during this time including the discontinuation of artificial recharge from the Bingham Reservoir System (which occurred from 1965 to 1990), improvements in water capture by the eastside collection system in the 1990s, pumping by KUC at wells K60 and K109 prior to 1996, municipal extractions in West Jordan and Herriman, and variations in precipitation and natural recharge.

Most of the water level responses indicated on Figure 5-3 are similar to those apparent in the September 2008 to September 2009 plot (Figure 5-2), but, expectedly, larger in magnitude. The largest water table decline area is centered adjacent to acidic extraction well ECG1146. Monitoring well ECG1124B, located 150 feet north of ECG1146, has declined more than 132 feet from September 1996 to September 2009. The area of influence from pumping at ECG1146 is elongated from north to south and the minus 100-foot contour encompasses approximately 93 acres. Transmissivity for this area is relatively low as compared to the pumping areas east

near the eastern acidic extraction wells and in the sulfate extraction area encompassing B2G1193 and BFG1200.

In the eastern portion of the low pH plume where acidic extraction wells BSG1201 and BSG2784 are located, the maximum water table decline is centered over approximately a one-quarter mile area including monitoring well BSG1177A, located 150 feet east of BSG1201 and monitoring well P241B, located approximately one-quarter mile southwest of BSG1201. The decline for this area is greater than 80 feet from September 1996 through September 2009. The majority of decline for this area occurred after 2003 when pumping was initiated at BSG1201. The area of influence is elongated in a north-south direction that stretches almost two miles and more than one-half mile in an east-west direction. The southern portion of this area of influence also includes sulfate extraction well LTG1147. LTG1147 extraction appears to extend the area of pumping influence south for approximately one-half mile. In addition, draw down influences from pumping at LTG1147 and/or pumping in the Herriman area are up to 78 feet for a distance of up to one-half mile east and southeast of LTG1147.

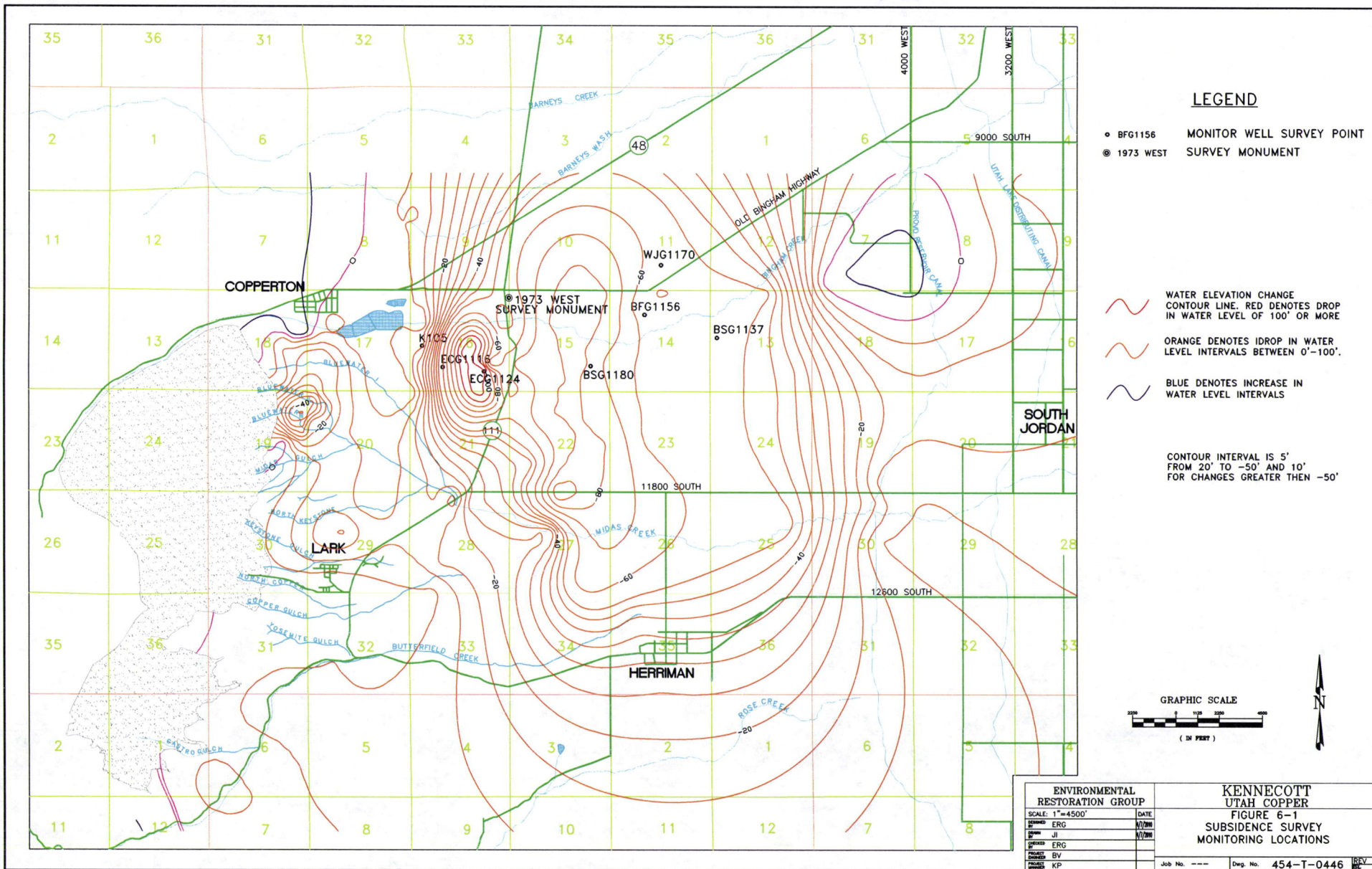
For the area that includes sulfate extraction wells B2G1193 and BFG1200, the water level decline from September 1996 through September 2009 is as much as 62 feet. For this area, there is less of a pronounced centered area or sink at the pumping wells, which reflects the higher transmissivity for this area.

The combined effect of pumping from the sulfate and acidic extraction wells as shown on Figure 5.3 influences a large area. The 50-foot water level decline contour interval encompasses approximately 6,130 acres. This large area of decline is also influenced from ground water extraction from private and municipal wells in the West Jordan and Herriman areas.

**Table 6-1 Subsidence Survey Data (Elevation Feet AMSL)**

<b>Survey Site</b>	<b>12/19/02 Survey</b>	<b>6/12/08 Survey</b>	<b>5/8/09 Survey</b>	<b>2008-09 Difference</b>	<b>2002-09 Difference</b>
ECG1116	5318.519	5318.5839	5318.5717	- 0.0122	0.0527
ECG1124	5250.985	5251.0286	5250.9955	- 0.0331	0.0105
BSG1137	4941.591	4941.5732	4941.6297	0.0565	0.0387
BFG1156A	4997.262	4997.3032	4997.3696	0.0664	0.1076
WJG1170	4968.166	4968.1324	4968.1561	0.0237	-0.0099
BSG1180	5078.004	5078.0463	5078.0651	0.0188	0.0611
K105	5341.950	5342.0648	5342.0798	0.0150	0.1298
1973 West	---	5205.3796	5205.4466	0.0670	---





**Figure 6-2 Time-Series Plots of Ground Elevation Measurements**

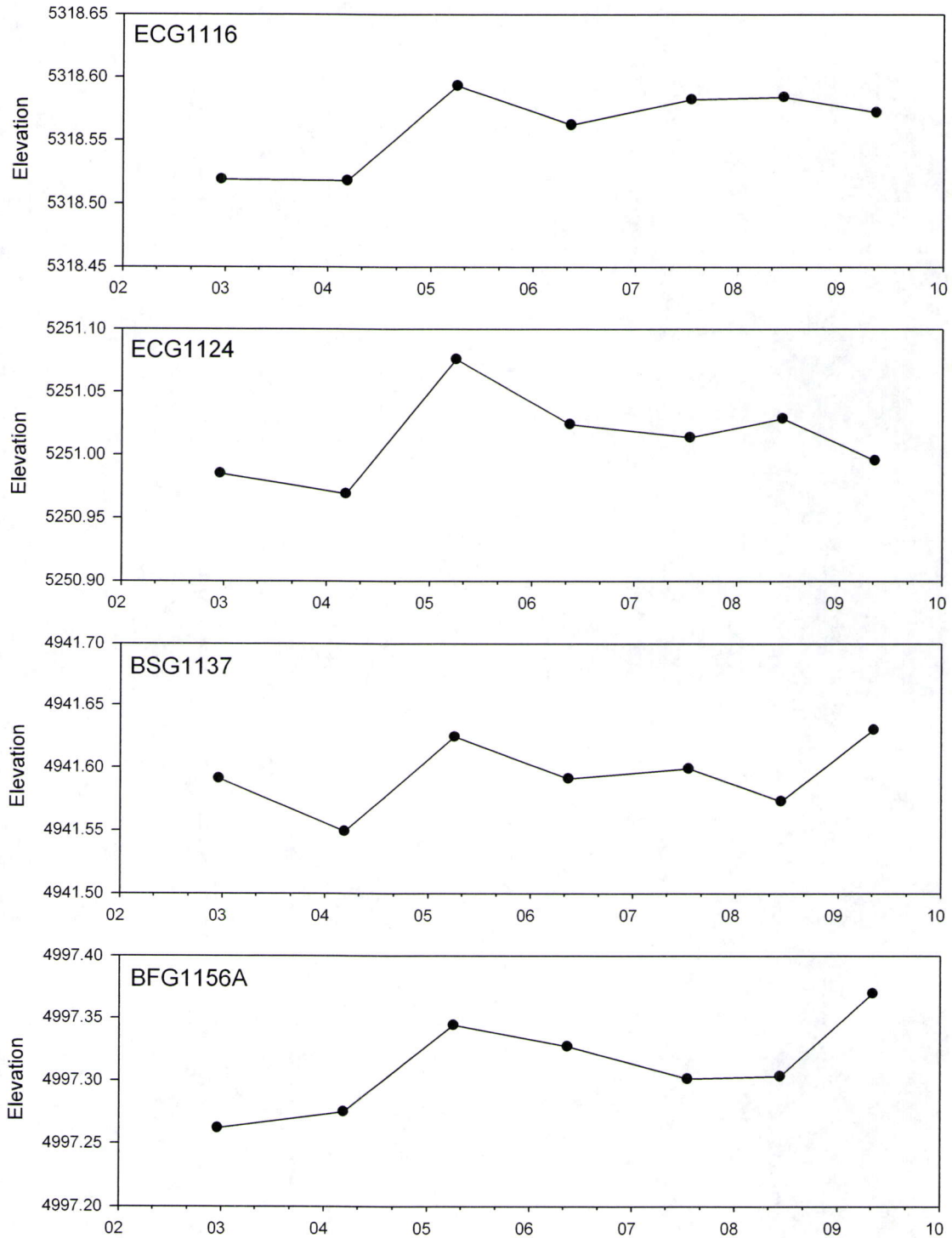
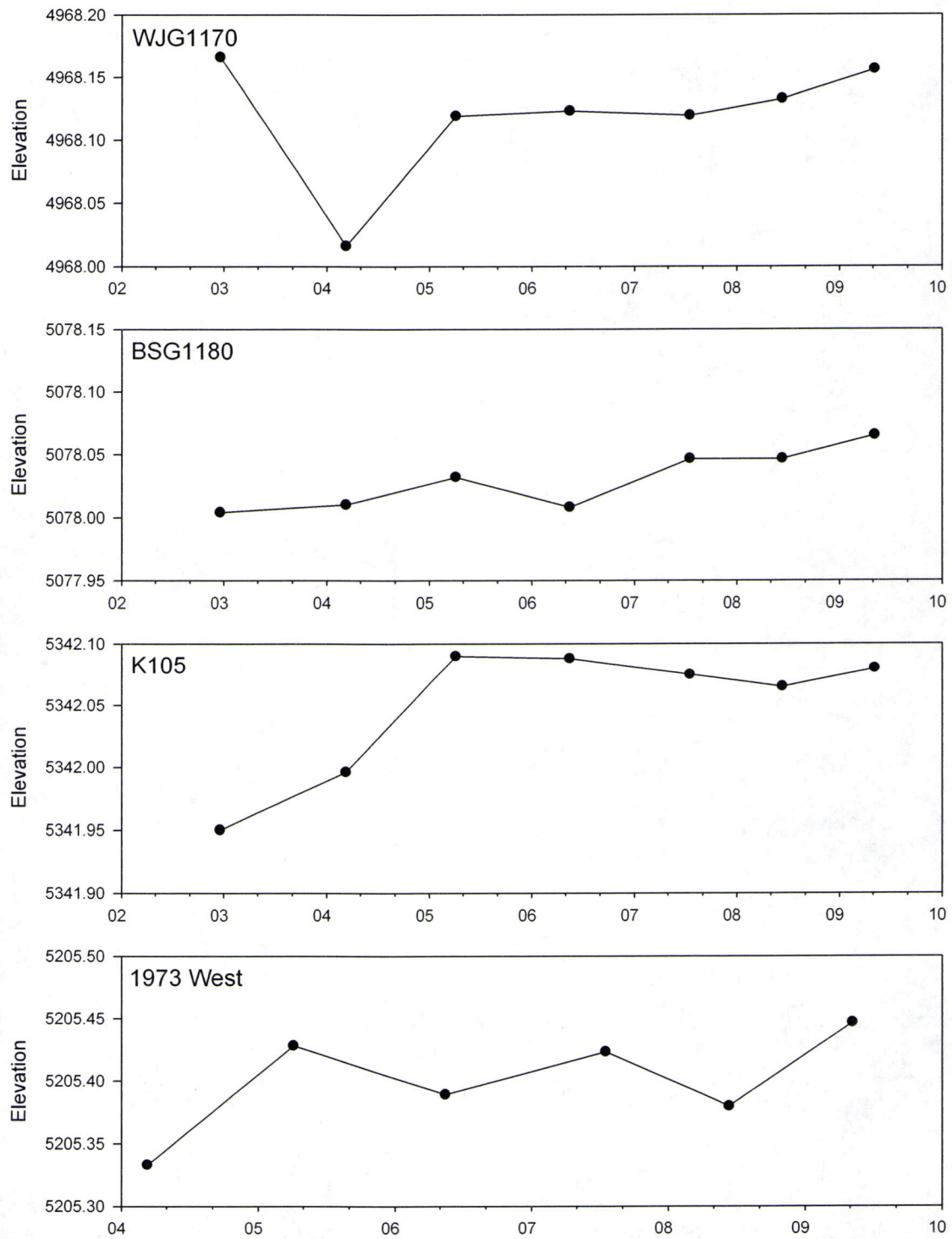


Figure 6-2 Continued





## 7. Tailings Chemistry

KUC manages groundwater extracted from the acid plume and other mining-affected waters in the tailings pipeline and the North Tailings Impoundment. Other waters managed in this circuit include meteoric drainage from the Eastside Collection System, RO concentrate from treatment of the Zone A sulfate plume, and water from dewatering of the mine pit. Acid plume water, meteoric leach water, and RO concentrate are commingled in and pumped through the Wastewater Disposal Pump Station (WDPS) to the beginning of the tailings pipeline. The mine dewatering flows are pumped directly to the process circuit.

KUC adds lime at the Copperton Concentrator to maintain a high pH during ore processing and the Bingham Canyon ore also naturally contains carbonate minerals. The high alkalinity of the tailings process water serves to neutralize the acidity in the low pH waters added to the tailings line from the WWDPS. The small volume of metal and gypsum precipitates that result are co-deposited within a much large mass of tailings in the tailings impoundment. KUC monitors the chemistry of the tailings system to assure that acidic plume waters and other mining-affected waters do not adversely impact the process water system or the long-term acid-generating potential of the tailings.

### 7.1 Flow and Tailings pH

KUC continuously monitors pH at the North Splitter Box (NSB) and flow through the WDPS. Daily data for 2009 are reported in Appendix C. These data are plotted on Figure 7-1 using a 7-day rolling average. Also plotted is ore throughput through the Copperton Concentrator, which directly correlates to tailings production reporting to the tailings line. The correlations between WDPS flow, mill throughput, and tailings pH are readily apparent in these plots.

The monitoring data show that the tailings process circuit maintained the pH at North Splitter Box above pH 6.7 for every day in 2009, except one day when the measured pH was 4.9. KUC thus met the management criterion listed in Appendix A of the OM&R Plan which specifies that pH at the North Splitter Box be greater than or equal to 6.7 for 90% of the time over a calendar year.

### 7.2 Tailings Chemistry

As specified by the monitoring program described in Appendix A of the OM&R Plan, KUC collects aqueous metals concentrations in tailings at NSB to confirm that the geochemical processes identified during the Remedial Design investigations are maintained.

There are no numeric criteria for the specific chemical conditions – other than pH, alkalinity, and neutralization potential (NP) – within the process circuit. Inspection of the data presented in Appendix C shows that the pH-driven solubility controls on dissolved metals identified in laboratory and field-scale pilot testing continue to operate.

### 7.3 UPDES Permit Compliance

KUC maintained compliance with UPDES discharge limits for metals concentrations during 2009.

### 7.4 Tailings Neutralization Potential

KUC monitors NP monthly in general mill tailings (GMT), which provides tailings neutralization characteristics prior to introduction of acid water flows, and NP and aqueous alkalinity at the North Splitter Box (NSB), which shows the characteristics of reacted tailings and the availability of aqueous neutralization potential. KUC uses these data to measure operation against management criteria and assess the impact of acid water neutralization on the long-term acid rock drainage potential of the tailings.

Monthly and 6-month rolling average NP and aqueous alkalinity data are presented in Table 7-1 and 7-2 respectively. The data indicate that there are some months in which the NP value at NSB is greater than that at GMT and other months in which GMT is greater. However, in all cases the NP is greater than 5 tons CaCO<sub>3</sub> eq/kt. Monthly aqueous alkalinity at NSB usually was greater than 10 mg CaCO<sub>3</sub> eq/l in all months of 2009.

KUC thus met the management criteria listed in Appendix A of the OM&R Plan.

**Table 7-1 2009 Tailing NP (t CaCO<sub>3</sub>/kt)**

Date	Monthly		6-Month Average	
	GMT	NSB	GMT	NSB
Jan-09	18	13	33	34
Feb-09	18	16	33	34
Mar-09	78	59	42	39
Apr-09	39	35	31	27
May-09	27	28	32	28
Jun-09	17	18	33	28
Jul-09	23	24	34	30
Aug-09	22	23	34	31
Sep-09	23	27	25	26
Oct-09	23	21	23	24

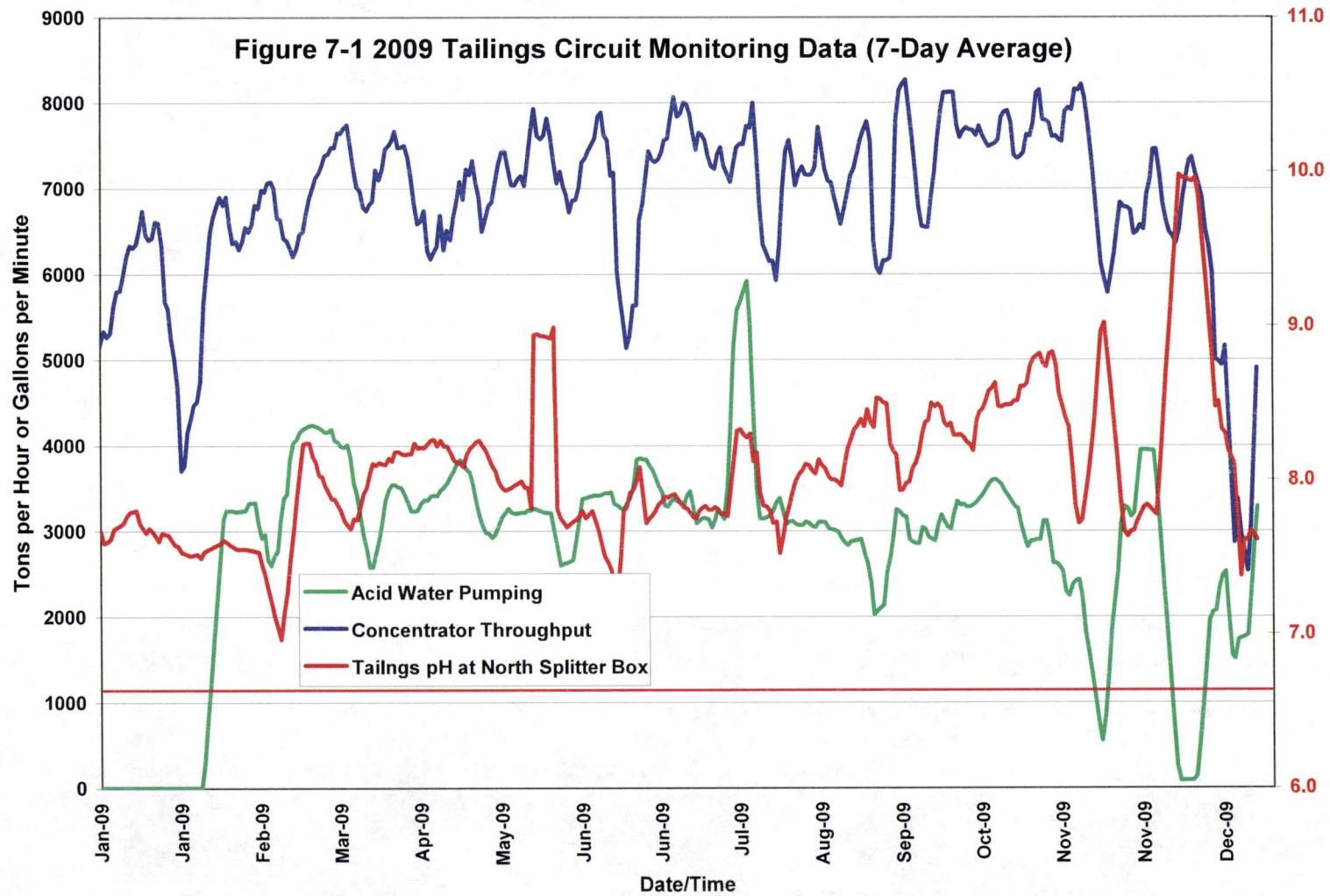
<b>Nov-09</b>	113	118	37	39
<b>Dec-09</b>	31	31	39	41

**Table 7-2 2009 Aqueous Alkalinity (mg CaCO<sub>3</sub>/l)**

<b>Date</b>	<b>Monthly</b>		<b>6-Month Average</b>	
	<b>GMT</b>	<b>NSB</b>	<b>GMT</b>	<b>NSB</b>
<b>Jan-09</b>	34	63	31	59
<b>Feb-09</b>	26	41	26	53
<b>Mar-09</b>	21	14	25	41
<b>Apr-09</b>	24	43	25	42
<b>May-09</b>	36	55	27	49
<b>Jun-09</b>	28	53	28	45
<b>Jul-09</b>	29	15	27	37
<b>Aug-09</b>	26	8	27	31
<b>Sep-09</b>	30	5	29	30
<b>Oct-09</b>	23	56	29	32
<b>Nov-09</b>	121	10	43	25
<b>Dec-09</b>	23	68	42	27



Figure 7-1 2009 Tailings Circuit Monitoring Data (7-Day Average)



## 8. References

Environmental Protection Agency and Utah Department of Environmental Quality, 2000, Record of Decision, KUC South Zone, Operable Unit 2, Southwest Jordan River Valley Groundwater Plumes, December 13, 130 p.

Environmental Protection Agency, 2003, Explanation of Significant Differences, Kennecott South Zone, OU2, June 23, 6 p.

Environmental Protection Agency, 2007, Explanation of Significant Differences, Kennecott South Zone, OU2, June, 5 p.

Kennecott Utah Copper Corporation (KUC), 2002. Final Design for Remedial Action at South Facilities Groundwater, December 2002.

Kennecott Utah Copper Corporation (KUC), 2005a, Groundwater Characterization and Monitoring Plan, Revision 7, March.

Kennecott Utah Copper Corporation (KUC), 2005b, Standard Operating Procedures for Water Sampling, Revision 5, March.

Kennecott Utah Copper Corporation (KUC), 2005c, Quality Assurance Project Plan for the Groundwater Characterization and Monitoring Plan, Revision 6, March.

Kennecott Utah Copper Corporation (KUC), 2009, Operation, Maintenance and Remediation Plan for South Facilities Groundwater (Version 2, approved April).

## Appendix A

### Groundwater Chemistry Data



Table A-1 Water Quality Data 2008-2009

WELL	DATE	pH	Cond uS/cm	Temp C	DTW Feet	TDS mg/l	Ca-T mg/l	Mg-T mg/l	Na-T mg/l	K-T mg/l	SO4 mg/l	Cl-T mg/l	F mg/l	Alk as CaCO3	Ag mg/l	Acidity mg/l as CaCO3	Al-D mg/l	As-D mg/l	Ba-D mg/l	Cd-D mg/l	Cr-D mg/l	Cu-D mg/l	Fe-D mg/l	Pb-D mg/l	Mn-D mg/l	Hg-T mg/l	Ni-D mg/l	Se-D mg/l	Zn-D mg/l
BIG1120A	4/3/2008	3.62	8530	13	345.45	11300	424	1380	126	6.3	7680	215	NM	<5	NM	NM	249.00	0.013	NM	0.855	<0.01	13.150	0.84	<0.005	185.000	0.0017	7.880	0.011	28.100
BIG1120A	5/12/2009	3.59	8270	15	351.56	11000	440	2870	80	9.6	7340	218	NM	<5	NM	NM	245.00	0.016	NM	0.790	<0.01	12.000	0.80	0.019	186.000	NM	7.670	0.016	27.700
BIG1120B	4/3/2008	6.68	8460	14	344.87	11700	531	1770	246	8.9	8020	149	NM	<5	NM	NM	0.08	0.007	NM	0.003	<0.01	0.040	<0.02	<0.005	15.400	0.0580	0.192	0.006	0.069
BIG1120B	5/12/2009	6.58	8540	16	350.97	12500	517	2000	245	13.0	8510	151	NM	<5	NM	NM	0.04	0.010	NM	0.003	<0.01	0.025	<0.02	<0.005	19.000	NM	0.190	0.007	0.041
BIG951	1/8/2008	3.31	11090	13	63.27	17300	416	1780	129	5.1	12200	244	NM	<5	NM	4340	637.00	0.016	NM	0.350	0.026	50.000	121.00	<0.005	135.000	<0.0002	8.160	0.013	51.900
BIG951	1/5/2009	3.42	10510	11	65.30	17100	414	1830	131	6.0	14100	222	NM	<5	NM	4510	615.00	0.009	NM	0.350	0.027	46.660	115.00	<0.005	126.000	NM	7.720	0.022	52.000
BIG951	4/21/2009	3.52	10680	15	65.12	16800	421	1740	135	5.8	11600	217	NM	<5	NM	4240	615.00	0.020	NM	0.360	0.030	45.640	109.00	<0.005	130.000	NM	7.650	0.028	49.400
BIG1157A	2/4/2008	6.84	3380	13	438.22	3270	614	179	95	4.8	2000	159	NM	<5	NM	NM	<0.02	<0.005	0.019	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	<0.0002	0.038	0.004	0.013
BIG1157A	4/2/2008	6.72	3270	12	438.00	3200	614	183	98	5.0	1930	152	NM	<5	NM	NM	<0.02	<0.005	0.020	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	<0.0002	0.037	0.005	0.015
BIG1157A	7/10/2008	6.73	3470	15	441.37	3310	605	177	91	4.9	2070	164	NM	<5	NM	NM	<0.02	<0.005	0.019	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	<0.0002	0.037	0.005	0.015
BIG1157A	7/15/2008	6.74	3430	16	441.39	3460	593	173	90	4.8	2050	163	NM	<5	NM	NM	<0.02	<0.005	0.018	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	<0.0002	0.037	0.005	0.015
BIG1157B	2/4/2008	6.79	7380	13	441.16	9080	488	1440	94	6.0	6330	150	NM	<5	NM	NM	<0.02	<0.005	0.018	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	<0.0002	0.034	0.003	0.021
BIG1157B	4/21/2008	6.73	7040	14	440.82	8870	486	1460	103	6.1	6150	145	NM	<5	NM	NM	<0.02	0.007	0.022	<0.001	<0.01	0.027	<0.02	<0.005	<0.01	0.0027	0.030	0.005	0.041
BIG1157B	7/11/2008	6.58	6550	17	444.38	9180	496	1470	87	7.2	6540	157	NM	<5	NM	NM	<0.02	0.007	0.024	<0.001	<0.01	0.032	<0.02	<0.005	<0.01	0.0031	0.034	0.005	0.037
BIG1157B	7/15/2008	6.73	7340	17	444.38	9820	423	1270	87	8.3	6620	156	NM	<5	NM	NM	<0.02	0.006	0.022	<0.001	<0.01	0.032	<0.02	<0.005	<0.01	0.0030	0.034	0.004	0.032
BIG1157B	10/13/2008	6.84	6830	13	450.11	9130	454	1360	90	5.1	6840	157	NM	<5	NM	NM	<0.02	0.010	0.023	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	0.0028	0.031	0.005	0.054
BIG1157B	2/16/2009	6.87	7850	13	448.56	9270	461	1390	97	9.2	7030	162	NM	<5	NM	NM	<0.02	0.008	0.023	<0.001	<0.01	0.026	<0.02	<0.005	<0.01	NM	<0.03	0.006	0.035
BIG1157B	4/7/2009	6.76	6950	15	444.11	9290	476	1430	89	7.2	6610	156	NM	<5	NM	NM	<0.02	0.006	0.022	<0.001	<0.01	<0.02	<0.02	<0.005	0.018	NM	<0.03	0.004	0.022
BIG1157B	7/13/2009	6.70	5630	18	448.23	9430	453	1410	93	9.1	6540	152	NM	<5	NM	NM	<0.02	0.007	0.024	<0.001	<0.01	0.025	<0.02	<0.005	0.010	NM	<0.03	0.004	0.015
BIG1157B	10/13/2009	6.85	7700	15	451.07	9220	485	1480	96	8.6	6440	165	NM	<5	NM	NM	<0.02	0.006	0.084	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	<0.0002	<0.03	0.002	0.015
BIG1157C	2/14/2008	7.37	1147	13	441.72	740	131	43	33	2.5	298	97	NM	162	NM	NM	<0.02	0.006	0.084	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	<0.0002	<0.03	0.002	0.016
BIG1157C	4/22/2008	7.24	1382	15	443.52	1030	197	65	42	3.2	474	100	NM	174	NM	NM	<0.02	<0.005	0.100	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	<0.0002	<0.03	0.002	0.016
BIG1157C	7/18/2008	7.18	1307	16	447.57	974	149	51	34	2.8	404	98	NM	171	NM	NM	<0.02	0.008	0.090	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	<0.0002	<0.03	0.002	0.016
BIG1157C	10/14/2008	7.35	1408	13	452.50	1030	185	60	37	3.0	520	113	NM	176	NM	NM	<0.02	<0.005	0.098	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	<0.0002	<0.03	0.002	0.016
BIG1157C	2/20/2009	7.34	1400	14	451.00	1030	180	61	41	3.3	506	116	NM	169	NM	NM	<0.02	<0.005	0.100	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	<0.0002	<0.03	0.002	0.016
BIG1157C	4/6/2009	7.52	1330	15	445.86	1030	175	55	35	3.0	474	103	NM	170	NM	NM	<0.02	<0.005	0.097	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.002	0.016
BIG1157C	7/17/2009	7.14	1081	18	451.56	860	149	49	38	2.8	316	98	NM	162	NM	NM	<0.02	<0.005	0.088	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.002	0.016
BIG1157C	10/12/2009	7.50	1205	16	453.45	844	146	51	37	3.3	337	103	NM	167	NM	NM	<0.02	<0.005	0.096	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.002	0.016
BIG1176A	12/8/2008	4.27	5140	12	422.13	5510	437	618	88	9.0	3490	159	NM	<5	NM	NM	25.1*	0.009	NM	0.260	<0.010	0.078	<0.020	0.009	47.000	0.0024	2.080	0.006	4.380
BIG1176A	12/14/2009	4.54	4960	13	442.86	5200	454	595	90	9.2	3280	183	NM	<5	NM	NM	26.60	0.008	NM	0.250	<0.01	0.080	<0.02	0.007	53.500	NM	1.840	0.006	4.110
BIG1176B	12/11/2008	6.93	3820	13	442.51	3690	696	198	92	5.2	2310	153	NM	262	NM	NM	<0.02	<0.005	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	0.036	0.006	<0.01
BIG1193	2/13/2009	6.72	3410	13	390.63	3100	436	239	74	4.3	1830	190	0.1	210	NM	NM	<0.02	<0.005	0.023	<0.001	<0.01	<0.02	1.60	<0.005	0.066	0.0002	0.032	0.003	0.032
BIG1193	6/11/2008	6.50	3390	14	390.63	3120	433	246	77	4.5	1990	194	0.1	212	NM	NM	<0.02	<0.005	0.024	<0.001	<0.01	<0.02	1.00	<0.005	0.063	0.0003	<0.03	0.003	0.051
BIG1193	7/15/2008	6.78	3360	16	462.15	3340	430	247	74	4.6	1930	192	2.2	211	NM	NM	<0.02	<0.005	0.021	<0.001	<0.01	<0.02	0.78	<0.005	0.063	0.0008	<0.03	0.005	0.044
BIG1193	10/14/2008	6.82	3250	14	390.63	3170	447	257	71	4.5	1950	199	0.1	211	NM	NM	<0.02	<0.005	0.024	<0.001	<0.01	<0.02	2.83	<0.005	0.150	<0.0002	<0.03	0.002	0.025
BIG1193	10/23/2008	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.001	NM	NM	<0.02	<0.005	0.120	NM			



WELL	DATE	pH su	Cond uS/cm	Temp C	DTW Feet	TDS mg/l	Ca-T mg/l	Mg-T mg/l	Na-T mg/l	K-T mg/l	SO4 mg/l	Cl-T mg/l	F mg/l	Alk mg/L as CaCO3	Ag mg/l	Acidity mg/L as CaCO3	Al-D mg/l	As-D mg/l	Ba-D mg/l	Cd-D mg/l	Cr-D mg/l	Cu-D mg/l	Fe-D mg/l	Pb-D mg/l	Mn-D mg/l	Hg-T mg/l	Ni-D mg/l	Se-D mg/l	Zn-D mg/l	
BFG1200	7/18/2008	7.20	2090	17	NM	1620	250	80	53	3.4	758	167	0.1	175	NM	NM	<0.02	0.006	0.030	<0.001	<0.01	<0.02	0.03	<0.005	<0.01	0.0022	<0.03	0.003	0.044	
BFG1200	10/14/2008	7.18	1960	14	NM	1530	268	84	53	3.4	787	177	0.1	181	NM	NM	<0.02	<0.005	0.036	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	<0.0002	<0.03	<0.002	0.060	
BFG1200	10/23/2008	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	<0.0002	<0.03	<0.002	0.060	
BFG1200	2/3/2009	NM	NM	NM	NM	NM	280	90	60	4.0	758	185	0.1	177	NM	NM	NM	NM	0.034	<0.001	NM	<0.02	0.03	<0.005	<0.01	NM	NM	NM	0.031	
BFG1200	2/20/2009	7.19	1993	15	0.00	1560	264	85	58	3.9	745	183	0.1	173	NM	NM	<0.02	0.006	0.033	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.003	0.013	
BFG1200	4/17/2009	7.43	2000	16	0.00	1500	256	81	55	3.5	708	180	0.1	172	NM	NM	<0.02	0.006	0.030	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.003	0.019	
BFG1200	7/24/2009	7.00	1830	20	0.00	1460	262	84	57	3.7	712	166	0.1	175	NM	NM	<0.02	0.006	0.032	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.003	<0.01	
BFG1200	11/19/2009	7.74	1953	16	0.00	1430	258	86	58	4.2	707	171	0.1	180	NM	NM	<0.02	0.005	0.035	<0.001	<0.01	<0.02	NM	<0.005	<0.01	NM	<0.03	0.003	0.024	
BRG267	7/31/2008	6.93	3430	23	287.90	2720	509	126	117	9.8	760	649	NM	350	NM	NM	<0.005	0.041	<0.001	<0.01	<0.02	NM	<0.005	<0.01	NM	NM	NM	0.006	0.095	
BRG267	6/4/2009	7.20	3860	17	290.30	2720	520	130	132	10.0	802	651	NM	421	NM	NM	<0.005	0.040	<0.001	<0.01	<0.02	NM	<0.005	<0.01	NM	NM	NM	0.007	<0.01	
BRG267	12/17/2009	6.53	3440	12	290.47	2540	480	115	108	9.8	798	679	NM	430	NM	NM	NM	0.007	0.041	<0.001	<0.01	0.028	NM	<0.005	NM	NM	NM	0.007	<0.01	
BRG267	4/18/2008	6.85	2510	14	311.09	1780	319	84	108	5.9	691	267	NM	263	NM	NM	NM	0.005	0.029	<0.001	<0.01	<0.02	NM	<0.005	NM	<0.0002	NM	<0.002	0.026	
BRG267	11/14/2008	6.99	2470	12	312.85	1780	313	80	104	5.7	767	276	NM	265	NM	NM	NM	<0.005	0.028	<0.001	<0.01	<0.02	NM	<0.005	NM	0.0002	NM	0.003	<0.01	
BRG267	6/19/2009	6.89	2420	16	314.18	1840	308	82	109	5.9	779	298	NM	260	NM	NM	NM	<0.005	0.029	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.002	<0.01	
BRG267	12/4/2009	6.94	2310	11	315.08	1870	288	77	101	6.0	679	279	NM	262	NM	NM	NM	<0.005	0.028	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	NM	<0.01	
BRG267	4/17/2008	6.91	1780	14	244.81	1240	229	60	63	6.4	521	219	NM	214	NM	NM	NM	<0.005	0.040	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.002	0.010	
BRG267	11/1/2008	6.82	1910	13	246.54	1310	232	60	62	6.4	540	214	NM	214	NM	NM	NM	<0.005	0.040	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	0.002	<0.01	
BRG267	2/10/2009	6.73	1936	12	246.72	1340	252	62	64	6.7	521	237	NM	208	NM	NM	NM	0.009	0.042	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	0.002	<0.01	
BRG267	9/18/2009	6.87	1766	16	248.36	1250	229	60	63	6.5	509	229	NM	213	NM	NM	NM	<0.005	0.040	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	NM	<0.01	
BSG11198	3/24/2008	4.45	7450	13	454.68	8310	406	1260	91	7.0	6050	167	NM	<5	NM	NM	NM	51.70	0.012	NM	0.821	<0.01	0.075	<0.02	0.008	144.000	0.0048	5.320	0.005	1.900
BSG11198	8/26/2008	4.67	7650	17	458.44	8200	423	1280	93	11.0	6850	169	NM	<5	NM	NM	NM	54.30	0.009	NM	0.740	<0.01	0.068	<0.02	0.007	155.000	0.0051	6.290	0.007	2.030
BSG11198	2/12/2009	4.76	7940	13	461.32	8920	419	1230	90	11.0	6360	191	NM	<5	NM	NM	NM	53.80	0.012	NM	0.737	<0.01	0.063	<0.02	0.006	127.000	NM	4.770	0.009	2.140
BSG11198	9/14/2009	4.69	6850	16	463.51	8750	420	1200	90	10.0	6210	185	NM	<5	NM	NM	NM	50.20	0.012	NM	0.750	<0.01	0.090	<0.02	0.007	148.000	NM	5.380	0.014	2.120
BSG11258	6/13/2008	7.30	1860	16	330.75	1140	186	56	54	3.2	164	366	NM	143	NM	NM	NM	<0.005	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.006	<0.01	
BSG11258	9/22/2008	7.35	1811	17	342.55	1090	201	50	59	3.2	179	367	NM	147	NM	NM	NM	<0.005	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.004	<0.01	
BSG11258	6/12/2008	7.38	854	17	333.65	484	91	28	39	2.3	44	129	NM	203	NM	NM	NM	<0.005	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.004	<0.01	
BSG11258	9/22/2009	7.52	917	16	344.30	454	94	28	41	2.1	46	128	NM	205	NM	NM	NM	<0.005	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.004	<0.01	
BSG1130A	9/8/2008	7.32	1826	16	356.92	1300	242	68	60	3.9	506	215	NM	231	NM	NM	<0.02	0.005	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	<0.0002	<0.03	0.003	0.012	
BSG1130A	9/2/2009	7.25	1824	17	360.10	1200	235	63	61	3.4	451	216	NM	231	NM	NM	<0.03	1.005	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.04	0.003	<0.01	
BSG1130B	9/8/2008	7.48	1257	16	380.41	770	133	47	48	3.6	154	202	NM	183	NM	NM	<0.02	<0.005	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	<0.0002	<0.03	0.003	0.014	
BSG1130B	9/1/2009	7.27	1280	17	363.40	716	128	44	48	2.8	147	198	NM	183	NM	NM	<0.02	<0.005	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	<0.0002	<0.03	0.004	<0.01	
BSG1132A	1/23/2008	7.08	2080	13	369.23	1620	295	90	72	3.7	713	249	NM	199	NM	NM	<0.02	<0.005	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	<0.0002	<0.03	0.004	<0.01	
BSG1132A	4/18/2008	6.95	2150	15	370.63	1600	300	96	79	3.9	713	240	NM	198	NM	NM	<0.02	<0.005	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	<0.0002	<0.03	0.004	<0.01	
BSG1132A	8/19/2008	6.87	2090	17	376.23	1590	289	91	75	3.7	698	234	NM	200	NM	NM	<0.02	<0.005	NM	<0.001	<0.01	0.055	<0.02	<0.005	<0.01	<0.0002	<0.03	0.005	0.017	
BSG1132A	10/27/2008	7.18	1986	14	378.83	1610	272	83	68	3.4	688	248	NM	195	NM	NM	<0.07	<0.005	NM	0.002	<0.01	0.024	<0.02	<0.005	0.014	<0.0002	<0.03	0.004	0.012	
BSG1132A	3/16/2009	7.11	2070	14	377.85	1590	275	86	73	3.7	637	274	NM	198	NM	NM	<0.02	<0.005	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.005	<0.01	
BSG1132A	5/7/2009	7.10	2020	16	375.75	1550	281	85	69	3.7	668	265	NM	195	NM	NM	<0.02	<0.005	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.004	<0.01	
BSG1132A	7/27/2009	7.03	2010	18	378.00	1540	285	87	70	3.6	644	244	NM	191	NM	NM	<0.02	<0.005	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.005	<0.01	
BSG1132A	10/16/2009	7.23	2070	15	380.58	1550	281	92	73	4.2	640	272	NM	204	NM	NM	<0.02	<0.005	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.004	<0.01	
BSG1132B	1/24/2008	7.02	2930	13	368.47	2910	530	165	72	4.8	1660	152	NM	231	NM	NM	<0.02	<0.005	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	<0.0002	<0.03	0.004	<0.01	
BSG1132B	4/18/2008	6.84	3010	15	372.87	2890	530	176	82	5.1	1670	146	NM	228	NM	NM	<0.02	<0.005	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	<0.0002	<0.03	0.004	<0.01	
BSG1132B	8/19/2008	6.84	2960	17	378.08	2850	509	167	79	4.9	1710	147	NM	235	NM	NM	<0.03	<0.005	NM	<0.001	<0.01	0.034	<0.02	<0.005	<0.01	<0.0002	<0.03	0.004	0.491	
BSG1132B	10/27/2008	7.09	2760	14	380.50	2820	487	160	74	4.7	1690	153	NM	224	NM	NM	<0.06	<0.005	NM	<0.001	<0.01	0.022	<0.02	<0.005	0.013	<0.0002	<0.03	0.004	0.170	
BSG1132B</																														



WELL	DATE	pH su	Cond uS/cm	Temp C	DTW Feet	TDS mg/l	Ca-T mg/l	Mg-T mg/l	Na-T mg/l	K-T mg/l	SO4 mg/l	Cl-T mg/l	F mg/l	Alk mg/l as CaCO3	Ag mg/l	Acidity mg/l as CaCO3	Al-D mg/l	As-D mg/l	Ba-D mg/l	Cd-D mg/l	Cr-D mg/l	Cu-D mg/l	Fe-D mg/l	Pb-D mg/l	Mn-D mg/l	Hg-T mg/l	Ni-D mg/l	Se-D mg/l	Zn-D mg/l
BSG1179C	6/26/2008	3.41	14060	17	444.70	24200	461	2680	61	10.0	18300	32	NM	<5	NM	10900	1030.00	0.024	NM	0.580	<0.01	67.330	200.00	0.007	197.000	0.0023	11.900	0.019	66.700
BSG1179C	6/23/2009	3.39	13410	16	451.23	22700	411	2520	63	8.8	16200	153	NM	<5	NM	6250	1030.00	0.027	NM	0.530	0.013	62.600	193.00	0.005	197.000	NM	11.660	NM	76.200
BSG1180A	4/2/2008	6.65	3540	12	410.77	3610	648	204	140	4.8	2270	156	NM	322	NM	NM	<0.02	0.005	NM	<0.001	0.013	<0.02	<0.005	<0.01	0.0003	0.050	0.006	0.147	
BSG1180A	2/12/2009	7.05	3990	12	418.73	3700	635	203	135	5.0	2280	167	NM	307	NM	NM	<0.02	<0.005	NM	<0.001	<0.01	<0.02	<0.02	<0.005	0.012	NM	0.036	0.006	0.013
BSG1180B	3/31/2008	3.78	10980	13	413.18	15000	411	2320	139	11.0	11800	148	NM	<5	NM	1191	160.00	0.024	NM	0.805	0.016	1.300	0.06	0.024	181.000	0.0320	8.490	0.017	20.300
BSG1180B	4/2/2009	3.88	10340	12	421.70	13500	398	2000	129	13.0	10300	154	NM	<5	NM	820	120.00	0.020	NM	0.550	0.014	1.170	0.03	0.024	160.000	NM	6.800	NM	16.700
BSG1180C	3/28/2008	6.47	4720	13	409.18	5180	569	534	108	2.8	3240	169	NM	NM	NM	2.02	<0.005	NM	0.069	<0.01	<0.02	<0.02	<0.005	36.700	0.0810	1.290	0.007	0.170	
BSG1180C	4/2/2009	6.65	4250	12	417.81	4650	602	423	107	5.1	2790	187	NM	435	NM	NM	0.64	<0.005	NM	0.039	0.011	<0.02	NM	<0.005	24.300	NM	0.736	NM	0.589
BSG1196B	8/16/2008	6.48	5980	15	405.72	6430	462	880	115	6.9	4310	137	NM	269	NM	NM	<0.02	0.006	NM	0.006	<0.01	<0.02	<0.02	<0.005	1.310	0.0006	0.041	0.003	0.023
BSG1196B	6/9/2009	6.44	5410	15	409.27	6630	472	902	115	6.2	5210	148	NM	249	NM	NM	<0.02	<0.005	NM	0.006	<0.01	<0.02	<0.02	<0.005	1.590	NM	0.052	0.006	0.036
BSG1196C	8/16/2008	6.60	6520	17	404.98	7450	541	944	187	7.6	5060	180	NM	376	NM	NM	1.49	<0.005	NM	0.100	<0.01	<0.02	<0.02	<0.005	44.800	0.0480	1.760	0.008	0.390
BSG1196C	6/9/2009	6.78	5510	15	408.92	6690	572	750	197	6.6	4250	154	NM	403	NM	NM	0.22	<0.005	NM	0.022	<0.01	<0.02	<0.02	<0.005	10.500	NM	0.430	0.006	0.057
BSG1201	1/29/2008	3.57	10400	13	NM	14600	422	4120	164	14.0	10600	158	75.2	<5	NM	2700	388.00	0.022	<0.01	0.680	<0.01	17.800	25.90	0.021	165.000	0.0071	7.880	0.016	35.600
BSG1201	6/10/2009	3.39	10070	15	NM	14400	407	1640	101	12.0	10800	160	75.3	<5	NM	2890	363.00	0.021	<0.01	0.670	<0.01	17.000	24.30	0.024	159.000	0.0082	7.580	0.015	34.600
BSG1201	7/19/2008	3.62	9960	16	NM	14800	400	1610	102	13.0	10400	160	73.1	<5	NM	5990	358.00	0.014	<0.01	0.622	<0.01	17.890	25.50	0.018	156.100	0.0065	5.920	0.021	27.000
BSG1201	12/10/2008	3.53	9560	10	NM	13600	398	1560	108	7.4	10300	168	71.5	<5	NM	2630	375.00	0.020	<0.01	0.600	<0.01	17.000	28.00	0.020	158.000	0.0060	6.770	0.014	26.000
BSG1201	2/24/2009	3.78	10090	15	NM	13900	404	1580	101	11.0	10400	158	72.3	<5	NM	2600	367.00	0.030	0.011	0.650	<0.01	18.200	26.70	0.021	164.000	NM	6.060	0.015	34.500
BSG1201	4/17/2009	3.75	10170	14	NM	13500	407	1550	100	9.1	10100	167	70.8	<5	NM	2530	341.00	0.020	<0.01	0.580	<0.01	17.300	25.90	0.018	144.000	NM	7.690	0.017	33.300
BSG1201	7/12/2009	3.58	9770	19	NM	14000	443	1670	100	5.1	10600	151	71.9	<5	NM	2260	371.00	0.018	<0.01	0.610	<0.01	15.720	23.70	0.018	156.000	NM	6.680	0.020	32.100
BSG1201	11/19/2009	3.82	9530	15	NM	12800	425	1560	107	12.0	10100	161	65.9	<5	NM	2460	370.88	0.014	<0.01	0.620	<0.01	16.170	NM	0.016	160.000	NM	6.860	0.021	33.210
BSG2777A	1/29/2008	4.33	15220	11	370.18	24900	419	1740	104	11.0	18500	153	NM	<5	NM	852	117.00	0.020	<0.01	1.750	<0.01	0.205	0.25	<0.00005	454.000	0.0095	17.300	0.013	12.000
BSG2777A	9/2/2008	4.21	14790	15	390.00	23900	386	3600	153	14.0	18700	149	NM	<5	NM	1080	114.00	0.014	0.014	1.710	<0.01	0.130	0.09	0.031	414.000	0.0089	15.900	0.012	12.100
BSG2777A	4/30/2009	4.41	14940	15	394.14	23700	419	3910	158	11.0	18900	156	NM	<5	NM	741	123.50	0.026	<0.01	1.850	<0.01	0.120	0.10	0.028	442.000	NM	14.780	0.015	10.660
BSG2777A	11/12/2008	4.42	14600	14	395.12	22900	378	3480	144	14.0	21300	154	NM	<5	NM	952	125.00	0.047	<0.01	1.460	<0.01	0.110	0.08	<Se-005	411.000	NM	13.380	0.015	-0.02
BSG2777B	3/25/2008	7.05	1062	15	380.06	672	113	37	37	2.4	209	96	NM	163	NM	NM	<0.1	<0.02	0.028	<0.001	<0.01	<0.02	<0.02	<0.005	<0.00001	<0.0002	<0.03	0.002	<0.01
BSG2777B	3/25/2009	7.30	956	13	389.34	624	106	35	33	2.5	182	107	NM	183	NM	NM	<0.02	<0.005	0.030	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.002	<0.01
BSG2778A	4/4/2008	6.83	4250	14	370.52	4460	744	290	110	5.6	2840	128	NM	286	NM	NM	<0.1	<0.02	0.028	<0.001	<0.01	<0.02	<0.02	<0.00005	<0.00001	0.0052	0.034	0.004	0.018
BSG2778A	6/31/2009	6.71	4630	17	377.87	5370	739	541	131	7.3	3670	133	NM	270	NM	NM	<0.02	<0.005	0.028	<0.001	0.013	<0.02	NM	<0.005	<0.01	NM	<0.03	0.005	0.019
BSG2778B	4/10/2008	7.85	1171	13	362.83	812	147	49	53	4.2	380	75	NM	147	NM	NM	<0.1	<0.005	0.108	<0.001	<0.01	<0.02	<0.02	<0.00005	<0.00001	<0.0002	<0.05	0.002	<0.01
BSG2778B	6/4/2009	7.53	1236	17	369.63	896	157	53	54	4.5	446	78	NM	153	NM	NM	0.02	<0.005	0.109	<0.001	<0.01	<0.02	NM	<0.005	<0.01	NM	<0.03	0.003	<0.01
BSG2779A	5/15/2008	4.50	4420	16	416.04	4460	436	437	98	6.8	2890	176	28.5	193	NM	NM	<0.02	0.005	NM	<0.001	<0.01	<0.02	<0.02	<0.005	0.018	<0.0002	<0.005	0.018	0.018
BSG2779A	12/1/2008	6.70	3660	13	422.50	4410	569	421	80	4.9	2960	171	NM	196	NM	NM	<0.02	<0.005	NM	<0.001	<0.01	<0.02	<0.02	<0.005	0.028	<0.0002	<0.03	0.004	0.019
BSG2779A	6/1/2009	6.58	4020	17	400.00	4410	556	447	85	5.8	2960	167	NM	190	NM	NM	<0.02	<0.005	NM	<0.001	0.012	<0.02	<0.02	<0.005	0.012	NM	<0.03	0.004	0.012
BSG2779A	10/30/2009	6.71	4220	12	425.11	4260	513	418	75	5.6	2860	161	NM	184	NM	NM	<0.02	<0.005	NM	<0.001	<0.01	<0.02	<0.02	<0.005	0.027	NM	<0.03	0.003	<0.01
BSG2779B	5/16/2008	7.00	3520	16	416.16	3410	627	189	84	5.3	2070	152	NM	258	NM	NM	<0.02	0.006	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	<0.0002	0.035	0.004	0.018
BSG2779B	12/2/2008	7.11	3340	13	423.50	3370	624	194	86	5.1	2210	151	NM	259	NM	NM	<0.02	<0.005	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	<0.0002	<0.03	0.004	0.022
BSG2779B	6/2/2009	7.15	3260	16	420.82	3460	637	202	94	5.4	2030	154	NM	256	NM	NM	<0.02	<0.005	NM	<0.001	0.012	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.004	<0.01
BSG2779B	11/3/2009	7.16	3210	15	425.82	3380	618	189	87	5.6	2140	159	NM	254	NM	NM	<0.02	<0.005	NM	<0.001	<0.01	<0.02	NM	<0.005	<0.01	NM	<0.03	0.004	<0.01
BSG2779C	7/28/2008	7.28	708	16	421.84	442	64	25	28	2.6	60	94	NM	157	NM	NM	<0.02	<0.005	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	<0.0002	<0.03	<0.002	<0.01
BSG2779C	12/1/2008	7.61	685	13	429.57	402	66	25	27	2.4	59	94	NM	160	NM	NM	<0.02	0.006	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	<0.0002	<0.03	<0.002	<0.01
BSG2779C	6/1/2009	7.30	680	17	430.00	432	69	27	29	2.5	59	91	NM	157	NM	NM	<0.02	<0.005	NM	<0.001	0.011	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.002	<0.01
BSG2779C	11/3/2009	7.57	703	15	431.53	416	64	25	28	2.6	59	98	NM	156	NM	NM	<0.02	0.005	NM	<0.001	<0.01	<0.02	NM	<0.005	<0.01	NM	<0.03	0.	



WELL	DATE	pH	Cond uS/cm	Temp C	DTW Feet	TDS mg/l	Ca-T mg/l	Mg-T mg/l	Na-T mg/l	K-T mg/l	SO4 mg/l	Cl-T mg/l	F mg/l	Alk mg/l as CaCO3	Ag mg/l	Acidity mg/l as CaCO3	Al-D mg/l	As-D mg/l	Ba-D mg/l	Cd-D mg/l	Cr-D mg/l	Cu-D mg/l	Fe-D mg/l	Pb-D mg/l	Mn-D mg/l	Hg-T mg/l	Ni-D mg/l	Se-D mg/l	Zn-D mg/l	
BSG2784	8/26/2008	3.75	11060	14	NM	16300	403	1870	72	8.8	11700	162	99.2	<5	NM	NM	433.00	0.023	<0.01	0.820	<0.01	13.600	1.30	0.030	262.000	0.0087	10.400	0.036	43.700	
BSG2784	12/10/2008	3.79	10960	13	NM	17000	415	2110	83	8.2	14700	160	102.0	<5	NM	2900	437.00	0.031	<0.01	0.880	0.010	12.370	1.39	0.032	258.000	0.0090	9.920	0.021	31.400	
BSG2784	4/17/2009	3.75	10830	14	0.00	15800	453	1960	74	10.0	11600	183	96.5	<5	NM	2860	394.00	0.027	<0.01	0.795	<0.01	12.830	1.29	0.032	217.000	NM	10.230	0.024	38.300	
BSG2784	11/19/2009	3.80	10060	14	0.00	14200	440	1650	68	12.0	11500	174	87.2	<5	NM	2910	440.42	0.020	<0.01	0.770	<0.01	12.800	NM	0.030	217.000	NM	8.600	0.028	46.200	
COG1149A	1/18/2008	7.17	1389	11	128.63	812	157	50	32	3.5	19	334	NM	157	NM	NM	NM	<0.005	0.193	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	<0.002	<0.01	
COG1149A	5/12/2008	7.12	1379	13	128.27	802	141	47	30	3.3	27	322	NM	155	NM	NM	NM	<0.005	0.204	<0.001	<0.01	0.031	<0.02	<0.005	0.029	NM	<0.03	<0.002	0.023	
COG1149A	8/4/2008	7.00	1353	14	128.57	876	153	49	30	3.4	27	327	NM	154	NM	NM	NM	<0.005	0.197	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	<0.002	0.075	
COG1149A	11/3/2008	7.35	1311	12	128.63	808	154	48	29	3.2	24	317	NM	157	NM	NM	NM	<0.005	0.200	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	<0.002	<0.01	
COG1149A	3/11/2009	7.18	1354	12	129.06	820	151	48	29	3.5	26	345	NM	153	NM	NM	NM	<0.005	0.190	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.002	<0.01	
COG1149A	5/5/2009	7.24	1294	12	128.95	810	142	46	29	3.4	25	337	NM	154	NM	NM	NM	<0.005	0.210	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	NM	<0.01	
COG1149A	8/3/2009	6.96	902	16	121.98	902	156	48	30	3.5	25	344	NM	154	NM	NM	NM	<0.005	0.200	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	<0.002	<0.01	
COG1149A	11/6/2009	7.26	1346	14	129.18	834	139	45	27	3.4	25	353	NM	153	NM	NM	NM	<0.005	0.210	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	NM	<0.01	
COG1149B	1/18/2008	7.38	824	13	150.92	492	86	31	15	4.6	7	153	NM	164	NM	NM	NM	<0.007	0.285	<0.001	0.013	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.002	<0.01	
COG1149B	5/12/2008	7.32	815	13	150.77	540	79	32	16	4.7	11	150	NM	162	NM	NM	NM	0.007	0.279	<0.001	0.010	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.002	<0.01	
COG1149B	8/4/2008	7.16	818	14	151.43	520	83	33	16	5.0	11	155	NM	168	NM	NM	NM	0.008	0.274	<0.001	0.012	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.002	0.057	
COG1149B	11/3/2008	7.52	806	12	151.51	536	91	33	16	4.8	9	151	NM	164	NM	NM	NM	0.006	0.284	<0.001	0.011	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.002	<0.01	
COG1149B	3/11/2009	7.47	813	13	152.40	464	88	32	15	4.8	11	160	NM	163	NM	NM	NM	0.006	0.260	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.003	<0.01	
COG1149B	5/5/2009	7.50	794	14	154.44	512	86	31	15	4.8	10	161	NM	165	NM	NM	NM	0.006	0.290	<0.001	0.014	<0.02	<0.02	<0.005	<0.01	NM	<0.03	NM	<0.01	
COG1149B	8/3/2009	7.30	829	17	152.95	518	92	33	16	5.0	10	160	NM	161	NM	NM	NM	0.006	0.271	<0.001	0.012	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.002	<0.01	
COG1149B	11/6/2009	7.58	808	14	153.20	524	80	31	15	4.7	10	168	NM	163	NM	NM	NM	0.006	0.290	<0.001	0.011	<0.02	<0.02	<0.005	<0.01	NM	<0.03	NM	<0.01	
COG1152A	3/2/2008	5.47	4750	16	209.52	4760	540	444	204	5.8	2730	555	NM	97	NM	NM	NM	<0.02	<0.005	NM	0.013	<0.01	<0.02	<0.02	<0.005	19.200	0.0003	0.302	0.006	0.039
COG1152A	12/11/2008	5.72	5320	12	208.00	4760	550	446	216	6.8	2810	598	NM	102	NM	NM	NM	<0.02	<0.005	NM	0.013	<0.01	<0.02	<0.02	<0.005	20.200	NM	0.330	0.009	0.030
COG11172	5/19/2008	7.22	666	13	69.64	376	64	30	25	1.2	67	38	NM	238	NM	NM	NM	0.005	0.057	<0.001	<0.01	0.005	NM	<0.005	NM	NM	<0.002	<0.01		
COG11172	8/5/2009	7.77	647	13	69.64	364	66	32	25	1.1	64	33	NM	235	NM	NM	NM	0.005	0.054	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	NM	<0.01	
COG11175A	8/27/2008	3.94	3940	15	404.53	4030	536	287	72	5.5	2400	325	NM	<5	NM	NM	NM	31.60	0.006	NM	0.063	<0.01	3.440	0.02	0.009	7.590	0.0004	0.170	0.004	3.090
COG11175B	8/7/2008	3.78	6510	15	405.11	7880	428	892	90	14.0	5400	170	NM	<5	NM	NM	NM	83.20	0.015	NM	0.550	0.012	9.750	0.09	0.027	139.000	0.0019	6.040	0.008	24.300
COG11175B	8/26/2009	3.93	6830	18	410.67	7420	437	878	88	6.9	4880	183	NM	<5	NM	NM	NM	NM	0.014	NM	0.540	NM	9.380	NM	0.026	NM	NM	NM	0.002	26.400
COG11178A	1/2/2008	7.23	2120	12	348.10	1640	273	86	71	4.3	284	484	0.1	147	NM	NM	NM	<0.02	<0.005	0.034	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	<0.0002	<0.03	0.006	<0.01
COG11178A	7/2/2008	6.99	2270	17	351.66	1730	275	89	71	4.3	284	522	0.1	145	NM	NM	NM	<0.02	0.006	0.035	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	0.0004	<0.03	0.004	0.034
COG11178A	7/13/2009	7.00	2210	19	303.97	1580	258	81	67	4.2	306	496	0.1	144	NM	NM	NM	<0.02	<0.005	0.034	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.005	<0.01
COG1178B	3/27/2009	7.23	2270	13	355.20	1630	267	87	70	4.4	311	517	NM	151	NM	NM	NM	<0.02	<0.005	0.036	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.005	<0.01
COG1204A	6/10/2008	7.08	870	11	774.84	372	58	41	1.5	3.6	67	28	NM	<0.1	NM	NM	NM	<0.1	<0.005	0.202	<0.001	<0.01	<0.02	<0.02	<0.005	<0.00001	NM	<0.03	<0.002	<0.01
COG1204A	10/20/2008	7.45	686	14	773.16	366	57	28	43	1.5	36	60	NM	<0.02	<0.005	0.193	<0.001	<0.01	<0.02	<0.02	<0.02	<0.02	<0.005	<0.00001	NM	<0.03	<0.002	<0.01		
COG1204A	5/26/2009	7.44	665	15	773.38	412	56	27	41	1.4	34	61	NM	<0.1	<0.005	0.190	<0.001	<0.01	<0.02	<0.02	<0.02	<0.02	<0.005	<1e-005	NM	<0.03	<0.002	<0.01		
COG1204A	10/21/2009	7.60	659	12	772.26	372	55	28	45	1.4	25	66	NM	230	NM	NM	NM	<0.02	<0.005	0.210	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	<0.002	<0.01
COG1204B	6/11/2008	7.09	732	11	774.48	420	69	34	29	1.5	99	44	NM	<0.2	NM	NM	NM	<0.02	0.005	0.130	<0.001	<0.01	<0.02	<0.02	<0.005	<0.00001	NM	<0.03	0.002	0.018
COG1204B	10/21/2008	7.42	728	11	773.56	444	<1	<1	<1	<0.5	104	39	NM	228	NM	NM	NM	<0.02	<0.005	0.110	<0.001	<0.01	<0.02	<0.02	<0.005	<0.00001	NM	<0.03	0.002	0.016
COG1204B	5/27/2009	7.47	730	15	773.47	462	75	35	29	1.4	115	41	NM	224	NM	NM	NM	<0.02	<0.005	0.100	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.002	0.013
COG1204B	8/12/2009	7.42	752	20	771.92	434	74	36	32	1.6	123	41	NM	224	NM	NM	NM	<0.01	0.005	0.097	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	NM	0.011
COG1204B	9/30/2009	7.41	741	10	772.33	456	73	35	30	2.0	125	39	NM	227	NM	NM	NM	<0.02	<0.005	0.098	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.002	0.018
COG1204B	10/23/2009	7.52	743	12	771.98	464	73	36	32	1.3	128	41	NM	228	NM	NM	NM	<0.02	<0.005	0.100	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.002	0.015
ECG1100A	3/5/2008	6.16	4060	14	87.40	3700	594	294	82	5.3	2190	85	NM	518	NM	NM	NM	<0.005	0.022	0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	NM	0.004	2.640
ECG1100A	5/8/2008	6.30	3950	15	87.42	3650	616	299	81	5.4	2180	88	NM	512</																



WELL	DATE	pH su	Cond uS/cm	Temp C	DTW Feet	TDS mg/l	Ca-T mg/l	Mg-T mg/l	Na-T mg/l	K-T mg/l	SO4 mg/l	Cl-T mg/l	F mg/l	Alk mg/L as CaCO3	Ag mg/l	Acidity mg/L as CaCO3	Al-D mg/l	As-D mg/l	Ba-D mg/l	Cd-D mg/l	Cr-D mg/l	Cu-D mg/l	Fe-D mg/l	Pb-D mg/l	Mn-D mg/l	Hg-T mg/l	Ni-D mg/l	Se-D mg/l	Zn-D mg/l	
EGG1118A	2/24/2009	3.46	9510	14	417.95	12700	427	1360	105	6.9	9050	177	NM	<5	NM	NM	422.00	0.018	NM	0.530	<0.01	26.200	59.20	<0.005	163.000	NM	7.230	0.014	46.400	
EGG1118B	3/3/2008	7.33	1847	13	404.62	1470	251	86	53	9.0	850	72	NM	146	NM	NM	0.17	<0.005	NM	<0.001	<0.01	0.022	<0.02	<0.005	0.037	<0.0002	<0.03	0.003	0.018	
EGG1118B	2/24/2009	7.28	2050	14	410.38	1640	276	90	53	9.0	1020	76	NM	153	NM	NM	0.02	<0.005	NM	<0.001	<0.01	0.022	<0.02	<0.005	<0.01	NM	<0.03	0.003	<0.01	
EGG1121A	6/17/2008	3.34	11200	16	428.52	17100	419	1970	121	9.4	12500	187	NM	<5	NM	3680	525.00	0.022	NM	0.840	<0.01	32.900	23.20	<0.005	272.000	0.0052	11.200	0.024	51.000	
EGG1121A	8/6/2009	3.59	11180	18	435.12	16500	419	1840	118	9.0	12300	206	NM	<5	NM	2570	494.00	0.021	NM	0.820	<0.01	28.400	19.00	<0.005	255.000	NM	9.970	NM	4.500	
EGG1121B	8/5/2009	7.02	4180	18	437.13	4210	782	256	102	8.9	2590	161	NM	311	NM	NM	<0.02	<0.005	NM	<0.001	<0.01	<0.02	<0.02	<0.005	0.032	NM	<0.03	NM	<0.01	
EGG1124B	2/29/2008	5.82	2300	14	366.98	2100	228	196	49	6.8	1480	48	NM	43	NM	NM	1.71	<0.005	NM	0.025	<0.01	0.600	1.31	<0.005	13.820	0.0014	0.850	0.240	2.134	
EGG1124B	6/2/2009	6.62	918	17	397.25	614	84	43	37	4.5	403	43	NM	73	NM	NM	0.06	<0.005	NM	0.002	0.029	0.020	<0.02	<0.005	2.090	NM	0.076	0.020	0.160	
EGG1124C	2/25/2008	7.53	506	14	360.30	226	41	12	37	4.4	88	42	NM	91	NM	NM	<0.02	<0.005	NM	<0.001	0.038	<0.02	<0.02	<0.005	0.011	<0.0002	<0.03	0.018	<0.01	
EGG1124C	6/15/2009	7.82	497	15	376.04	280	41	12	35	4.0	89	39	NM	93	NM	NM	<0.02	<0.005	NM	<0.001	0.043	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.015	<0.01	
EGG1128A	10/24/2008	3.86	6400	13	358.48	7900	144	49	822	25.0	5210	227	NM	<5	NM	NM	131.00	0.010	NM	0.760	<0.01	3.960	0.03	0.064	144.000	0.0039	5.380	0.009	33.000	
EGG1128A	11/9/2009	4.00	8010	13	326.43	9660	444	1070	76	13.0	6310	234	NM	<5	NM	NM	157.21	0.012	NM	1.010	<0.01	3.500	0.09	0.054	163.780	NM	6.270	0.018	36.990	
EGG1128B	10/24/2008	7.30	855	13	347.72	514	431	882	80	11.0	106	119	NM	154	NM	NM	<0.1	<0.005	NM	0.031	0.180	0.180	<0.02	<0.005	<0.00001	<0.0002	0.300	0.002	1.210	
EGG1128B	11/9/2009	7.60	904	13	321.69	484	84	30	28	3.5	105	125	NM	157	NM	NM	<0.02	<0.005	NM	<0.001	<0.01	<0.02	<0.02	<0.005	0.013	NM	<0.03	0.003	<0.01	
EGG1131A	6/23/2009	6.89	4080	15	316.92	3240	625	189	85	5.3	1460	557	NM	214	NM	NM	<0.02	<0.005	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.003	0.012	
EGG1144A	7/7/2008	3.43	7940	16	408.17	10700	462	1160	82	4.1	7120	174	NM	<5	NM	NM	NM	0.012	NM	NM	<0.01	NM	41.85	<0.005	NM	0.0005	NM	0.012	NM	
EGG1144A	7/29/2009	3.33	7700	18	418.53	9790	473	1070	87	3.8	6530	177	NM	<5	NM	NM	314.00	0.010	NM	0.240	<0.01	20.130	40.30	<0.005	85.400	NM	4.060	0.012	26.500	
EGG1144B	7/7/2008	4.18	6640	16	378.17	8180	409	1010	39	9.1	5490	91	NM	<5	NM	NM	NM	0.006	NM	NM	<0.01	NM	1.41	<0.005	NM	0.0075	NM	0.012	NM	
EGG1144B	7/29/2009	4.03	7960	18	371.64	9950	443	1290	51	11.0	7050	92	NM	<5	NM	NM	184.00	0.017	NM	0.470	<0.01	20.870	0.94	0.009	243.000	NM	8.550	0.024	31.500	
EGG1145A	11/18/2008	3.80	8240	13	387.49	11100	421	1290	84	12.0	9180	181	NM	<5	NM	1680	236.00	0.010	NM	1.040	<0.01	21.200	0.12	0.068	246.000	0.0055	9.580	0.013	53.300	
EGG1145A	12/14/2009	3.85	8060	13	377.90	10200	406	1170	79	10.0	7190	205	NM	<5	NM	1810	206.00	0.008	NM	1.030	<0.01	18.300	0.16	0.055	213.000	NM	7.860	0.016	45.700	
EGG1145B	11/2/2008	6.07	5280	12	381.63	6380	504	808	82	11.0	4220	148	NM	282	NM	NM	130	7.21	<0.005	NM	0.100	<0.01	0.350	0.05	<0.005	86.300	0.0045	2.050	0.007	3.910
EGG1145B	12/15/2009	5.97	5240	12	372.42	5660	489	661	84	10.0	3370	153	NM	337	NM	NM	106	3.72	<0.005	NM	0.078	<0.01	0.167	0.06	<0.005	67.600	NM	1.490	0.008	2.610
EGG1145C	11/18/2008	7.01	3300	13	379.87	3180	585	206	58	8.3	2090	134	NM	364	NM	NM	<0.02	<0.005	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	0.0049	<0.03	0.005	<0.01	
EGG1145C	12/15/2009	6.53	3360	13	370.21	3060	529	188	53	8.1	1810	142	NM	369	NM	NM	<0.02	<0.005	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.006	<0.01	
EGG1146	3/18/2008	3.38	14310	15	NM	26600	425	2910	61	4.5	20100	168	145.0	<5	NM	7819	1080.00	0.032	<0.01	0.720	<0.01	76.200	213.00	<0.005	288.000	0.0058	15.400	0.016	85.300	
EGG1146	6/10/2008	3.19	14760	15	NM	26100	414	2700	74	13.0	18100	184	140.0	<5	NM	7180	918.00	0.035	<0.01	0.800	<0.01	62.100	167.00	<0.005	291.000	0.0089	14.700	0.025	82.400	
EGG1146	3/38	3.38	14800	17	NM	25200	410	2690	74	11.0	17900	180	135.0	<5	NM	8716	914.00	0.041	<0.01	0.763	<0.01	58.720	166.00	<0.005	294.000	0.0077	13.580	0.037	75.960	
EGG1146	12/10/2008	3.55	14380	14	NM	25600	399	2830	80	8.8	21300	168	149.0	<5	NM	7150	1030.00	0.045	<0.01	0.780	0.012	67.100	177.00	<0.005	360.000	0.0082	16.600	0.032	73.800	
EGG1146	2/17/2009	3.51	14410	16	264.00	24600	421	2680	74	8.2	18900	196	137.0	<5	NM	6220	940.80	0.041	<0.01	0.810	0.010	54.070	153.00	<0.005	317.000	NM	10.300	0.028	86.600	
EGG1146	5/12/2009	3.58	14690	16	407.80	23700	440	2870	80	9.6	18200	175	142.0	<5	NM	5810	942.00	0.040	<0.01	0.760	<0.01	66.300	152.00	<0.005	316.000	NM	14.000	0.035	78.100	
EGG1146	9/1/2009	3.40	14230	17	264.00	22700	421	2520	89	11.0	17200	172	133.0	<5	NM	5280	817.00	0.031	<0.01	0.810	<0.01	57.480	117.50	<0.005	303.000	NM	12.780	0.032	70.500	
EGG1146	11/19/2009	3.63	15130	16	264.00	26300	426	2690	80	12.0	18300	186	134.0	<5	NM	6690	936.00	0.028	<0.01	0.790	<0.01	58.530	NM	<0.005	307.000	NM	14.270	0.035	79.000	
EGG1182A	8/5/2008	8.03	572	15	48.10	432	22	6.7	135	2.7	70	84	NM	197	NM	NM	0.02	<0.005	NM	<0.001	<0.01	<0.02	0.07	<0.005	0.047	0.0064	<0.03	<0.002	0.011	
EGG1182A	8/14/2009	8.10	953	19	51.16	504	31	12	132	2.8	79	108	NM	212	NM	NM	<0.02	<0.005	NM	<0.001	<0.01	<0.02	<0.02	<0.005	0.033	NM	<0.03	<0.002	<0.01	
EGG1182B	8/5/2008	7.20	737	22	45.25	580	98	44	40	3.4	113	116	NM	240	NM	NM	<0.02	0.010	NM	<0.001	<0.01	<0.02	0.74	<0.005	0.050	<0.0002	<0.03	<0.002	<0.01	
EGG1182B	8/14/2009	7.21	1087	21	44.47	632	97	41	38	3.4	110	128	NM	239	NM	NM	<0.02	0.007	NM	<0.001	<0.01	<0.02	0.53	<0.005	0.038	NM	<0.03	<0.002	<0.01	
EGG1183A	6/17/2008	6.77	361	16	43.70	2750	467	127	195	7.7	732	746	NM	286	NM	NM	NM	<0.005	NM	<0.001	NM	<0.02	NM	<0.005	NM	NM	NM	0.004	<0.01	
EGG1183A	11/13/2008	6.95	3240	12	45.46	2620	417	111	176	7.1	620	748	NM	289	NM	NM	NM	0.005	NM	<0.001	NM	<0.02	NM	<0.005	NM	NM	NM	0.132	0.003	
EGG1183A	5/29/2009	6.86	3560	16	43.31	2780	444	115	177	7.5	641	804	NM	293	NM	NM	NM	0.006	NM	<0.001	NM	<0.02	NM	<0.005	NM	NM	NM	0.004	<0.01	
EGG1183A	11/24/2009	6.80	4082	14	45.40	2350	388	105	158	7.8	571	812	NM	286	NM	NM	NM	0.005	NM	<0.001	NM	<0.02	NM	<0.005	NM	NM	NM	0.004	<0.01	
EGG1183B	6/17/2008	7.05	218	17	33.70	1460	221	80	93	8.1	148	537	NM	181	NM	NM	NM	<0.005	NM	<0.001	NM	<0.02	NM	<0.005	NM	NM	NM	0.002	<0.01	
EGG1183B	11/13/2008	7.19	2110	13	34.90	1370	215	77	97	8.8	161	535	NM	184	NM	NM	NM	<0.005	NM	<0.001	NM	<0.02	NM							



WELL	DATE	pH	su	Cond uS/cm	Temp C	DTW Feet	TDS mg/l	Ca-T mg/l	Mg-T mg/l	Na-T mg/l	K-T mg/l	SO4 mg/l	Cl-T mg/l	F mg/l	Alk mg/l as CaCO3	Ag mg/l	Acidity mg/l as CaCO3	Al-D mg/l	As-D mg/l	Ba-D mg/l	Cd-D mg/l	Cr-D mg/l	Cu-D mg/l	Fe-D mg/l	Pb-D mg/l	Mn-D mg/l	Hg-T mg/l	Ni-D mg/l	Se-D mg/l	Zn-D mg/l
ECG1187	9/9/2009	7.16	2190	16	67.44	1560	245	64	78	5.4	195	523	0.2	160	NM	NM	NM	<0.02	0.009	0.146	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.004	<0.01
ECG1187	10/1/2009	7.21	2040	13	67.67	1430	247	66	78	6.0	194	529	0.2	163	NM	NM	NM	<0.02	<0.005	0.130	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.004	<0.01
ECG1187	11/10/2009	7.22	2280	14	67.80	1400	242	63	72	5.2	193	519	0.2	164	NM	NM	NM	<0.02	<0.005	0.130	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.004	<0.01
ECG1187	12/4/2009	7.12	2180	12	67.82	1460	241	65	78	5.2	201	505	0.2	163	NM	NM	NM	<0.02	0.005	0.140	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	NM	<0.01
ECG1188	1/8/2008	6.77	4000	12	45.97	3460	630	134	225	6.3	1650	475	0.2	275	NM	NM	NM	<0.02	<0.005	0.026	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	<0.002	0.016
ECG1188	4/8/2008	7.15	4230	13	46.28	3470	635	140	240	6.3	1670	478	0.2	271	NM	NM	NM	<0.02	0.005	0.026	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.002	<0.01
ECG1188	7/24/2008	6.94	4240	15	46.90	3610	645	136	235	6.4	1650	495	0.2	279	NM	NM	NM	<0.02	<0.005	0.027	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	<0.002	0.024
ECG1188	10/8/2008	6.99	3720	14	47.27	3470	635	136	231	6.0	1790	504	0.2	270	NM	NM	NM	<0.02	<0.005	0.026	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	<0.002	<0.01
ECG1188	1/8/2009	6.63	4000	12	47.66	3480	626	130	224	6.1	1850	522	0.2	274	NM	NM	NM	<0.02	<0.005	0.027	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	<0.002	0.011
ECG1188	4/14/2009	6.93	4110	14	47.58	3440	607	133	235	6.1	1660	543	0.3	270	NM	NM	NM	<0.02	<0.005	0.026	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	<0.002	<0.01
ECG1188	7/14/2009	6.94	4160	15	48.80	3520	620	132	236	6.6	1610	488	0.2	266	NM	NM	NM	<0.02	<0.005	0.027	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	<0.002	<0.01
ECG1188	10/19/2009	6.69	4030	15	49.06	3440	632	141	247	7.5	1670	526	0.2	268	NM	NM	NM	<0.02	<0.005	0.026	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	<0.002	<0.01
ECG1188	1/14/2008	7.40	980	12	225.93	590	102	32	29	4.8	9	210	0.2	126	NM	NM	NM	<0.02	<0.005	0.360	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	<0.002	0.015
ECG1188	4/9/2008	7.61	990	13	225.46	588	102	32	29	4.6	14	214	0.3	128	NM	NM	NM	<0.02	<0.005	0.360	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	<0.002	<0.01
ECG1188	4/15/2008	7.35	960	15	225.80	590	99	31	29	4.6	15	218	0.3	130	NM	NM	NM	<0.02	<0.005	0.356	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	<0.002	<0.01
ECG1188	7/11/2008	7.44	1020	15	223.70	660	98	32	28	4.7	14	227	0.3	128	NM	NM	NM	<0.02	<0.005	0.356	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	<0.002	<0.01
ECG1188	10/7/2008	7.50	969	14	226.19	606	95	29	27	4.2	14	215	0.3	131	NM	NM	NM	<0.02	<0.005	0.290	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	<0.002	<0.01
ECG1188	1/13/2009	7.40	5120	12	226.27	624	101	32	30	4.7	13	213	0.3	130	NM	NM	NM	<0.02	<0.005	0.360	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	<0.002	<0.01
ECG1188	4/14/2009	7.43	1010	13	225.60	616	97	32	30	4.7	13	226	0.3	127	NM	NM	NM	<0.02	<0.005	0.360	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	<0.002	<0.01
ECG1188	7/10/2009	7.25	1008	17	226.05	628	96	31	28	4.7	12	226	0.3	125	NM	NM	NM	<0.02	<0.005	0.360	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	<0.002	<0.01
ECG1188	10/19/2009	7.31	993	15	225.95	612	102	33	31	5.3	14	221	0.3	130	NM	NM	NM	<0.02	<0.005	0.360	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	<0.002	<0.01
ECG1190	1/14/2008	7.28	1346	13	133.96	840	158	44	27	3.0	53	288	NM	157	NM	NM	NM	<0.02	<0.005	0.170	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	<0.002	0.028
ECG1190	4/9/2008	7.43	1370	13	133.90	844	160	46	29	3.0	58	294	NM	155	NM	NM	NM	<0.02	<0.005	0.185	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	<0.002	<0.01
ECG1190	7/22/2008	7.16	1420	15	134.40	1030	161	46	28	3.2	56	303	NM	154	NM	NM	NM	<0.02	<0.005	0.167	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	<0.002	0.014
ECG1190	10/7/2008	7.31	1333	14	134.80	886	151	42	27	2.6	57	304	NM	158	NM	NM	NM	<0.02	<0.005	0.170	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	<0.002	<0.01
ECG1190	1/9/2009	7.11	1327	12	135.28	912	171	45	27	3.2	66	321	NM	159	NM	NM	NM	0.17	<0.005	0.180	<0.001	<0.01	0.021	<0.02	<0.005	<0.01	NM	<0.03	<0.002	0.010
ECG1190	4/14/2009	7.22	1380	14	135.14	876	156	45	28	2.9	59	322	NM	159	NM	NM	NM	<0.02	<0.005	0.180	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	<0.002	<0.01
ECG1190	7/14/2009	7.05	1390	16	135.72	824	155	43	26	3.3	55	283	NM	154	NM	NM	NM	<0.02	<0.005	0.170	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	<0.002	<0.01
ECG1190	10/19/2009	7.23	1377	15	135.96	940	162	46	29	3.2	67	321	NM	152	NM	NM	NM	<0.02	<0.005	0.170	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	<0.002	<0.01
ECG1203	11/12/2008	4.13	9430	12	NM	13900	457	1380	100	<0.5	10500	153	NM	<5	NM	NM	NM	536.00	0.017	<0.01	0.210	0.028	224.000	0.05	<0.005	69.600	NM	5.030	0.005	51.500
ECG1203	6/8/2009	3.39	9620	14	0.00	16000	440	1340	62	3.2	11600	131	NM	<5	NM	NM	NM	850.00	0.012	<0.01	0.220	0.138	316.000	14.66	<0.005	74.400	NM	3.920	0.022	56.200
ECG299	3/27/2008	6.06	2850	10	164.50	2250	254	179	129	8.7	1270	244	NM	51	NM	NM	NM	<0.005	0.012	0.005	<0.01	0.210	NM	<0.005	NM	NM	NM	<0.002	0.343	
ECG299	6/13/2008	6.13	3220	13	166.25	2590	298	211	146	9.9	1660	228	NM	43	NM	NM	NM	<0.005	0.012	0.006	<0.01	0.230	NM	<0.005	NM	NM	NM	0.002	0.440	
ECG299	6/18/2009	6.37	2920	18	167.56	2500	286	187	139	10.9	1440	265	NM	58	NM	NM	NM	<0.005	0.012	0.005	<0.01	0.135	NM	<0.005	NM	NM	NM	<0.002	0.320	
ECG299	12/18/2009	5.82	2430	12	168.48	2960	318	257	161	12.0	1920	218	NM	29	NM	NM	NM	<0.005	0.012	0.008	<0.01	0.250	NM	<0.005	NM	NM	NM	0.002	0.500	
ECG900	1/7/2008	6.95	1805	17	159.19	1250	220	61	70	4.7	290	310	NM	219	NM	NM	NM	<0.005	0.070	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	NM	<0.002	0.018
ECG902	4/4/2008	7.11	1670	14	180.10	1020	177	51	74	4.3	270	250	NM	220	NM	NM	NM	0.005	0.088	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.002	0.018	
ECG902	11/17/2008	7.18	1565	13	181.73	1030	184	51	76	4.8	309	249	NM	222	NM	NM	NM	<0.005	0.080	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.002	<0.01	
ECG902	6/4/2009	7.07	1712	15	183.15	1040	191	54	81	5.0	280	254	NM	210	NM	NM	NM	<0.005	0.083	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.002	<0.01	
ECG902	12/17/2009	6.97	1599	13	184.43	980	168	50	73	5.0	263	248	NM	217	NM	NM	NM	<0.005	0.083	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.002	<0.01	
ECG905	2/13/2008	6.22	2450	12	213.47	2130	352	93	85	7.2	1260	129	NM	187	NM	NM	NM	<0.005	0.024	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	0.002	0.011	
ECG905	3/4/2008	6.48	2600	11	214.46	2130	409	99	90	7.8	1190	128	NM	178	NM	NM	NM	<0.005	0.026	<0.001	<0.01	0.069	NM	<0.005	NM	NM	NM</			



WELL	DATE	pH	Cond uS/cm	Temp C	DTW Feet	TDS mg/l	Ca-T mg/l	Mg-T mg/l	Na-T mg/l	K-T mg/l	SO4 mg/l	Cl-T mg/l	F mg/l	Alk mg/l as CaCO3	Ag mg/l	Acidity mg/l as CaCO3	Al-D mg/l	As-D mg/l	Ba-D mg/l	Cd-D mg/l	Cr-D mg/l	Cu-D mg/l	Fe-D mg/l	Pb-D mg/l	Mn-D mg/l	Hg-T mg/l	Ni-D mg/l	Se-D mg/l	Zn-D mg/l
ECG824	1/30/2008	6.79	5401	10	33.54	4480	627	335	256	13.0	2380	511	NM	437	NM	NM	NM	<0.005	0.028	0.003	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.002	0.083
ECG824	4/15/2008	6.49	5130	13	31.47	4500	628	338	270	13.0	2500	543	NM	424	NM	NM	NM	0.006	0.029	0.003	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.002	0.085
ECG824	7/9/2008	6.52	5380	15	31.83	4630	586	329	265	13.0	2500	543	NM	428	NM	NM	NM	0.006	0.029	0.003	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.002	0.103
ECG824	11/13/2008	6.55	5410	13	32.70	4570	632	332	272	13.0	2510	535	NM	430	NM	NM	NM	0.005	0.028	0.002	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.002	0.086
ECG824	1/14/2009	6.45	5260	13	33.38	4560	648	346	267	13.0	2420	542	NM	431	NM	NM	NM	<0.005	0.029	0.002	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.002	0.073
ECG824	4/3/2009	6.76	5480	11	32.90	4640	600	328	271	13.0	2380	522	NM	428	NM	NM	NM	<0.005	0.027	0.002	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.002	0.085
ECG824	7/9/2009	6.55	5380	15	31.20	4640	623	334	266	14.0	2280	552	NM	415	NM	NM	NM	<0.005	0.027	0.002	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.002	0.085
ECG824	10/28/2009	6.65	4900	11	32.13	4500	628	341	270	15.0	2300	582	NM	437	NM	NM	NM	0.008	0.028	0.002	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.002	0.088
ECG825	1/31/2008	6.80	3912	11	36.71	2440	441	105	178	5.2	914	577	NM	348	NM	NM	NM	0.007	0.028	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.003	0.013
ECG825	4/11/2008	6.78	3580	13	34.20	2520	478	118	203	5.8	955	601	NM	362	NM	NM	NM	0.005	0.033	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.003	0.012
ECG825	7/9/2008	6.59	3840	14	35.68	2670	464	115	204	5.3	984	578	NM	361	NM	NM	NM	<0.005	0.031	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.003	0.010
ECG825	11/13/2008	6.63	3590	14	33.52	2420	448	109	186	5.2	913	579	NM	366	NM	NM	NM	0.005	0.030	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.004	<0.01
ECG825	1/7/2009	6.82	3220	13	36.00	2500	451	113	200	5.6	940	610	NM	331	NM	NM	NM	0.006	0.030	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.004	<0.01
ECG825	4/3/2009	6.92	3550	12	35.11	2520	426	105	192	5.5	931	589	NM	335	NM	NM	NM	<0.005	0.030	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.004	<0.01
ECG825	7/9/2009	6.74	3960	15	33.66	2830	506	125	215	6.5	991	651	NM	353	NM	NM	NM	<0.005	0.033	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.004	<0.01
ECG825	10/28/2009	6.81	4330	11	36.38	2510	465	118	200	7.1	981	652	NM	335	NM	NM	NM	0.006	0.031	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.003	<0.01
ECG831	2/20/2008	6.74	719	13	49.95	5370	882	204	330	14.0	581	2260	NM	214	NM	NM	NM	0.009	0.064	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.012	<0.01
ECG831	8/5/2008	6.55	6550	14	51.03	5420	914	206	330	14.0	578	2160	NM	212	NM	NM	NM	<0.005	0.081	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.011	0.056
ECG831	2/24/2009	6.93	7630	14	51.35	5260	930	208	323	15.0	552	2230	NM	209	NM	NM	NM	<0.005	0.092	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.010	<0.01
ECG831	8/14/2009	6.70	7460	16	50.78	5310	851	199	326	15.0	567	2130	NM	206	NM	NM	NM	<0.005	0.090	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.002	0.019
ECG832	1/6/2008	6.95	1080	12	84.84	646	110	48	28	2.8	133	129	NM	250	NM	NM	NM	<0.005	0.030	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.002	0.046
ECG832	8/5/2008	6.94	1062	14	84.91	630	117	50	32	2.9	158	124	NM	247	NM	NM	NM	<0.005	0.027	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.002	0.046
ECG832	1/7/2009	7.07	1061	13	85.55	646	120	52	30	3.2	159	135	NM	249	NM	NM	NM	<0.005	0.031	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.002	<0.01
ECG832	8/13/2009	7.36	1114	18	83.85	666	115	50	32	3.3	147	133	NM	247	NM	NM	NM	<0.005	0.030	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.002	<0.01
ECG833	6/17/2008	6.00	213	12	120.30	1830	305	80	109	5.5	1000	163	NM	148	NM	NM	NM	<0.005	0.055	NM	<0.02	NM	<0.005	NM	NM	NM	NM	<0.002	0.015
ECG834	5/13/2008	6.88	1380	13	117.80	888	155	53	58	3.2	347	95	NM	286	NM	NM	NM	<0.005	0.035	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.002	0.017
ECG834	10/31/2008	6.87	1370	13	120.12	884	170	55	66	3.2	339	93	NM	292	NM	NM	NM	<0.005	0.032	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.002	0.017
ECG834	5/19/2009	6.94	1385	15	116.81	870	158	54	55	3.2	328	97	NM	288	NM	NM	NM	<0.005	0.034	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.013	0.019
ECG834	11/25/2009	7.07	1483	12	119.90	868	153	52	53	3.3	320	99	NM	291	NM	NM	NM	0.005	0.032	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.002	0.011
ECG835	4/3/2008	6.93	3280	14	53.06	2640	387	164	178	5.3	1380	228	NM	380	NM	NM	NM	<0.005	0.022	<0.001	<0.01	0.031	NM	<0.005	NM	NM	NM	<0.003	0.033
ECG835	11/6/2008	6.71	3500	12	53.10	2730	401	175	186	5.6	1360	228	NM	394	NM	NM	NM	<0.005	0.022	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.003	0.033
ECG835	5/8/2009	6.80	3400	12	52.85	2740	411	174	183	6.1	1420	226	NM	391	NM	NM	NM	<0.005	0.023	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.003	0.033
ECG835	12/2/2009	7.16	3770	15	53.23	2880	398	168	185	6.8	1460	207	NM	394	NM	NM	NM	<0.005	0.023	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.002	0.016
ECG836	4/3/2008	6.67	4380	13	42.68	4010	564	286	208	4.8	2300	254	NM	310	NM	NM	NM	0.013	0.011	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.002	0.058
ECG836	11/7/2008	6.59	4520	12	47.80	3070	565	283	205	4.7	2230	265	NM	316	NM	NM	NM	0.012	0.011	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.016	0.025
ECG836	5/8/2009	6.43	4380	13	47.80	4000	564	278	205	5.2	2330	259	NM	310	NM	NM	NM	0.013	0.011	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.003	0.019
ECG836	12/2/2009	6.92	5020	9	42.68	4010	548	267	216	6.0	2280	260	NM	312	NM	NM	NM	0.014	0.012	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.002	0.016
ECG837	5/13/2008	6.84	1670	13	241.91	1070	187	46	86	2.8	398	160	NM	248	NM	NM	NM	0.005	0.020	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.002	0.019
ECG837	10/15/2008	6.84	1683	14	242.80	1050	186	48	82	2.8	409	163	NM	250	NM	NM	NM	<0.005	0.019	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.002	0.015
ECG837	5/19/2009	6.84	1666	17	242.15	1050	195	47	81	2.8	400	172	NM	269	NM	NM	NM	<0.005	0.020	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.002	0.014
ECG837	10/28/2009	7.08	1719	12	243.00	1050	195	48	85	3.1	392	187	NM	266	NM	NM	NM	<0.005	0.020	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.002	0.013
ECG838	4/22/2008	6.95	1320	14	215.28	766	143	49	76	2.5	213	124	NM	305	NM	NM	NM	0.012	0.022	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.002	0.012
ECG838	10/15/2008	6.99	1410	14	215.93	772	131	47	67	2.1	256	129	NM	303	NM	NM	NM	0.010	0.025	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.002	0.012
ECG838	5/19/2009	7.00	1302	15	214.30	784	132	48	71	2.3	216	141	NM	301	NM	NM	NM	0.010	0.026	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.002	0.012
ECG838	10/28/2009	7.16	1366	10	215.80	792	139	48	74	2.6	211	145	NM	303	NM	NM	NM	0.009	0.025	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.002	0.018
EPG1165A	1/4/2008	7.16	12																										



WELL	DATE	pH	Cond uS/cm	Temp C	DTW Feet	TDS mg/L	Ca+T mg/L	Mg+T mg/L	Na+T mg/L	K+T mg/L	SO4 mg/L	Cl+T mg/L	F mg/L	Alk mg/L as CaCO3	Ag mg/L	Acidity mg/L as CaCO3	ALD mg/L	As+D mg/L	Ba+D mg/L	C4+D mg/L	G+D mg/L	Cu+D mg/L	Fe+D mg/L	Pb+D mg/L	Mn+D mg/L	Hg+T mg/L	Ni+D mg/L	Se+D mg/L	Zn+D mg/L
K72	1/25/2008	7.23	1831	13	144.00	1050	185	51	66	5.5	141	354	0.2	187	NM	NM	NM	<0.005	0.063	<0.001	<0.01	<0.02	0.06	<0.005	<0.01	NM	<0.03	0.002	0.014
K72	4/9/2008	7.26	1740	13	144.00	1060	185	54	75	5.9	143	347	0.2	171	NM	NM	NM	<0.005	0.070	<0.001	<0.01	<0.02	0.13	<0.005	<0.01	NM	<0.03	0.002	0.048
K72	8/19/2008	7.09	1728	14	215.00	1060	169	51	73	5.9	139	357	0.2	171	NM	NM	NM	<0.005	0.064	<0.001	<0.01	<0.02	0.03	<0.005	<0.01	NM	<0.03	<0.002	0.010
K72	11/17/2008	7.30	1741	13	144.00	1070	168	51	70	5.6	150	354	0.2	175	NM	NM	NM	<0.005	0.085	<0.001	<0.01	<0.02	0.03	<0.005	<0.01	NM	<0.03	0.002	0.010
K72	2/27/2009	7.27	1765	13	213.00	1210	171	50	66	5.4	142	374	0.2	181	NM	NM	NM	<0.005	0.062	<0.001	<0.01	<0.02	0.11	<0.005	<0.01	NM	<0.03	0.002	<0.01
K72	5/12/2009	7.07	1765	13	213.00	1210	171	50	66	5.4	142	374	0.2	181	NM	NM	NM	<0.005	0.062	<0.001	<0.01	<0.02	0.11	<0.005	<0.01	NM	<0.03	0.002	<0.01
K72	7/14/2009	6.88	1765	14	215.00	972	176	51	72	6.0	135	339	0.2	174	NM	NM	NM	<0.005	0.064	<0.001	<0.01	<0.02	0.15	<0.005	<0.01	NM	<0.03	<0.002	0.011
K72	11/20/2009	7.02	1789	13	215.00	1100	181	51	71	5.7	128	377	NM	NM	169	NM	NM	<0.005	0.065	<0.001	<0.01	<0.02	0.29	<0.005	0.015	NM	<0.03	0.002	0.011
K83	1/29/2008	3.75	8230	15	79.59	15300	367	1460	105	6.0	11900	168	NM	<5	NM	4100	NM	0.016	<0.01	0.298	<0.01	294.000	0.32	0.130	77.300	NM	<0.03	0.015	56.900
K83	3/31/2008	3.63	10700	17	78.31	15300	351	1420	98	3.3	10400	175	NM	<5	NM	4257	NM	0.028	<0.01	0.265	0.018	254.000	0.32	0.130	77.300	NM	<0.03	0.015	56.900
K83	5/12/2008	3.63	10700	16	78.31	15300	351	1420	98	3.3	10400	175	NM	<5	NM	4257	NM	0.028	<0.01	0.265	0.018	254.000	0.32	0.130	77.300	NM	<0.03	0.015	56.900
K83	4/30/2008	3.62	8740	14	82.54	14800	360	1460	96	3.4	11100	168	NM	<5	NM	4250	NM	0.019	<0.01	0.235	0.017	241.000	0.31	0.130	71.100	NM	<0.03	0.015	52.600
K83	5/19/2008	3.61	8740	15	81.20	14700	371	1500	97	4.1	11200	170	NM	<5	NM	4250	NM	0.018	<0.01	0.256	0.018	243.000	0.33	0.140	70.900	NM	<0.03	0.015	52.600
K83	7/21/2008	3.65	9980	13	77.64	15400	357	1440	95	3.2	10700	176	NM	<5	NM	7240	NM	0.024	<0.01	0.250	0.026	253.740	0.38	0.130	82.200	NM	<0.03	0.014	50.900
K83	8/12/2008	3.66	10350	16	78.31	15300	351	1420	98	3.0	10600	173	NM	<5	NM	5243	NM	0.024	<0.01	0.259	0.026	248.000	0.37	0.132	82.100	NM	<0.03	0.014	50.900
K83	10/23/2008	3.68	10700	14	78.31	15300	351	1420	98	3.3	10400	175	NM	<5	NM	5243	NM	0.024	<0.01	0.259	0.026	248.000	0.37	0.132	82.100	NM	<0.03	0.014	50.900
K83	10/23/2008	3.63	11240	17	78.31	15300	351	1420	98	3.3	10400	175	NM	<5	NM	5243	NM	0.024	<0.01	0.259	0.026	248.000	0.37	0.132	82.100	NM	<0.03	0.014	50.900
K83	11/24/2008	3.63	11240	17	78.31	15300	351	1420	98	3.3	10400	175	NM	<5	NM	5243	NM	0.024	<0.01	0.259	0.026	248.000	0.37	0.132	82.100	NM	<0.03	0.014	50.900
K83	12/22/2008	3.29	33600	14	85.54	12100	470	11600	50	<0.5	114000	165	NM	<5	NM	4810	NM	0.028	<0.01	0.220	0.016	307.000	0.37	0.081	100.000	NM	<0.03	0.014	72.300
K83	12/22/2008	3.29	33600	14	85.54	12100	470	11600	50	<0.5	114000	165	NM	<5	NM	4810	NM	0.028	<0.01	0.220	0.016	307.000	0.37	0.081	100.000	NM	<0.03	0.014	72.300
K83	12/22/2008	3.29	33600	14	85.54	12100	470	11600	50	<0.5	114000	165	NM	<5	NM	4810	NM	0.028	<0.01	0.220	0.016	307.000	0.37	0.081	100.000	NM	<0.03	0.014	72.300
K83	12/22/2008	3.29	33600	14	85.54	12100	470	11600	50	<0.5	114000	165	NM	<5	NM	4810	NM	0.028	<0.01	0.220	0.016	307.000	0.37	0.081	100.000	NM	<0.03	0.014	72.300
K83	12/22/2008	3.29	33600	14	85.54	12100	470	11600	50	<0.5	114000	165	NM	<5	NM	4810	NM	0.028	<0.01	0.220	0.016	307.000	0.37	0.081	100.000	NM	<0.03	0.014	72.300
K83	12/22/2008	3.29	33600	14	85.54	12100	470	11600	50	<0.5	114000	165	NM	<5	NM	4810	NM	0.028	<0.01	0.220	0.016	307.000	0.37	0.081	100.000	NM	<0.03	0.014	72.300
K83	12/22/2008	3.29	33600	14	85.54	12100	470	11600	50	<0.5	114000	165	NM	<5	NM	4810	NM	0.028	<0.01	0.220	0.016	307.000	0.37	0.081	100.000	NM	<0.03	0.014	72.300
K83	12/22/2008	3.29	33600	14	85.54	12100	470	11600	50	<0.5	114000	165	NM	<5	NM	4810	NM	0.028	<0.01	0.220	0.016	307.000	0.37	0.081	100.000	NM	<0.03	0.014	72.300
K83	12/22/2008	3.29	33600	14	85.54	12100	470	11600	50	<0.5	114000	165	NM	<5	NM	4810	NM	0.028	<0.01	0.220	0.016	307.000	0.37	0.081	100.000	NM	<0.03	0.014	72.300
K83	12/22/2008	3.29	33600	14	85.54	12100	470	11600	50	<0.5	114000	165	NM	<5	NM	4810	NM	0.028	<0.01	0.220	0.016	307.000	0.37	0.081	100.000	NM	<0.03	0.014	72.300
K83	12/22/2008	3.29	33600	14	85.54	12100	470	11600	50	<0.5	114000	165	NM	<5	NM	4810	NM	0.028	<0.01	0.220	0.016	307.000	0.37	0.081	100.000	NM	<0.03	0.014	72.300
K83	12/22/2008	3.29	33600	14	85.54	12100	470	11600	50	<0.5	114000	165	NM	<5	NM	4810	NM	0.028	<0.01	0.220	0.016	307.000	0.37	0.081	100.000	NM	<0.03	0.014	72.300
K83	12/22/2008	3.29	33600	14	85.54	12100	470	11600	50	<0.5	114000	165	NM	<5	NM	4810	NM	0.028	<0.01	0.220	0.016	307.000	0.37	0.081	100.000	NM	<0.03	0.014	72.300
K83	12/22/2008	3.29	33600	14	85.54	12100	470	11600	50	<0.5	114000	165	NM	<5	NM	4810	NM	0.028	<0.01	0.220	0.016	307.000	0.37	0.081	100.000	NM	<0.03	0.014	72.300
K83	12/22/2008	3.29	33600	14	85.54	12100	470	11600	50	<0.5	114000	165	NM	<5	NM	4810	NM	0.028	<0.01	0.220	0.016	307.000	0.37	0.081	100.000	NM	<0.03	0.014	72.300
K83	12/22/2008	3.29	33600	14	85.54	12100	470	11600	50	<0.5	114000	165	NM	<5	NM	4810	NM	0.028	<0.01	0.220	0.016	307.000	0.37	0.081	100.000	NM	<0.03	0.014	72.300
K83	12/22/2008	3.29	33600	14	85.54	12100	470	11600	50	<0.5	114000	165	NM	<5	NM	4810	NM	0.028	<0.01	0.220	0.016	307.000	0.37	0.081	100.000	NM	<0.03	0.014	72.300
K83	12/22/2008	3.29	33600	14	85.54	12100	470	11600	50	<0.5	114000	165	NM	<5	NM	4810	NM	0.028	<0.01	0.220	0.016	307.000	0.37	0.081	100.000	NM	<0.03	0.014	72.300
K83	12/22/2008	3.29	33600	14	85.54	12100	470	11600	50	<0.5	114000	165	NM	<5	NM	4810	NM	0.028	<0.01	0.220	0.016	307.000	0.37	0.081	100.000	NM	<0.03	0.014	72.300
K83	12/22/2008	3.29	33600	14	85.54	12100	470	11600	50	<0.5	114000	165	NM	<5	NM	4810	NM	0.028	<0.01	0.220	0.016	307.000	0.37	0.081	100.000	NM	<0.03	0.014	72.300
K83	12/22/2008	3.29	33600	14	85.54	12100	470	11600	50	<0.5	114000	165	NM	<5	NM	4810	NM	0.028	<0.01	0.220	0.016	307.000	0.37	0.081	100.000	NM	<0.03	0.014	72.300
K83	12/22/2008	3.29	33600	14	85.54	12100	470	11600	50	<0.5	114000	165	NM	<5	NM	4810	NM	0.028	<0.01	0.220	0.016	307.000	0.37	0.081	100.000	NM	<0.03	0.014	72.300
K83	12/22/2008	3.29	33600	14	85.54	12100	470	11600	50	<0.5	114000	165	NM	<5	NM	4810	NM	0.028	<0.01	0.220	0.016	307.000	0.37	0.081	100.000	NM	<0.03	0.014	72.300
K83	12/22/2008	3.29	33600	14	85.54	12100	470	11600	50	<0.5	114000	165	NM	<5	NM	4810	NM	0.028	<0.01	0.220	0.016	307.000	0.37	0.081	100.000	NM	<0.03	0.014	72.300
K83	12/22/2008	3.29	33600	14	85.54	12100	470	11600	50	<0.5	114000	165	NM	<5	NM	4810	NM												



WELL	DATE	pH su	Cond uS/cm	Temp C	DTW Feet	TDS mg/l	Ca-T mg/l	Mg-T mg/l	Na-T mg/l	K-T mg/l	SO4 mg/l	Cl-T mg/l	F mg/l	Alk mg/l as CaCO3	Ag mg/l	Acidity mg/l as CaCO3	Al-D mg/l	As-D mg/l	Ba-D mg/l	Cd-D mg/l	Cr-D mg/l	Cu-D mg/l	Fe-D mg/l	Pb-D mg/l	Mn-D mg/l	Hg-T mg/l	Ni-D mg/l	Se-D mg/l	Zn-D mg/l	
P194B	7/22/2008	7.31	629	16	232.58	370	54	21	43	2.4	41	73	0.2	168	NM	NM	NM	<0.005	0.082	<0.001	0.010	<0.02	<0.02	<0.005	<0.01	<0.0002	<0.03	<0.002	0.097	
P194B	7/10/2009	7.55	590	20	235.97	366	53	19	40	2.3	41	76	0.2	166	NM	NM	NM	<0.005	0.084	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	<0.002	0.069	
P197B	11/7/2008	7.19	2430	13	438.10	2080	374	112	76	3.5	893	259	NM	211	NM	NM	<0.02	<0.005	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	<0.0002	<0.03	0.005	<0.01	
P197B	10/26/2009	7.15	2410	13	439.50	1920	349	98	68	4.3	903	286	NM	205	NM	NM	<0.02	<0.005	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.005	<0.01	
P208B	6/2/2008	5.04	5920	15	384.00	6390	457	847	95	8.6	5120	171	NM	38	NM	NM	3.28	0.006	NM	0.340	<0.01	0.150	<0.02	<0.005	47.800	0.0032	3.100	0.006	16.800	
P208B	5/23/2009	5.59	5020	14	371.23	5840	438	736	98	7.7	4040	183	NM	73	NM	NM	1.40	0.010	NM	0.230	0.012	0.083	<0.02	<0.005	35.800	NM	1.870	0.006	11.500	
P208B	6/5/2008	6.85	3210	13	429.55	3500	661	191	107	4.7	2130	211	NM	225	NM	NM	<0.02	<0.005	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	<0.0002	<0.03	0.004	0.020	
P208B	6/11/2009	6.83	3430	15	438.94	3560	655	189	107	5.0	2080	213	NM	228	NM	NM	<0.02	<0.005	NM	<0.001	0.011	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.003	0.015	
P220	5/1/2008	6.95	2520	14	71.41	1630	173	58	298	6.3	614	258	NM	369	NM	NM	NM	0.012	0.035	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.002	0.011	
P220	11/24/2008	7.15	2320	12	62.55	1710	170	53	278	5.4	573	374	NM	388	NM	NM	NM	0.009	0.036	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.002	<0.01	
P220	6/19/2009	7.20	2420	15	76.50	1650	165	54	303	6.4	569	265	NM	374	NM	NM	NM	0.013	0.039	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.002	<0.01	
P220	11/20/2009	7.17	2500	14	77.72	1670	192	57	296	6.4	558	261	NM	396	NM	NM	NM	0.011	0.040	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.002	<0.01	
P225	4/4/2008	7.02	1380	14	59.05	822	139	39	67	3.7	182	190	NM	213	NM	NM	NM	0.006	0.128	<0.001	<0.01	<0.02	NM	<0.005	NM	<0.0002	NM	<0.002	<0.01	
P225	11/17/2008	7.17	1327	13	61.87	842	153	40	68	4.3	228	196	NM	216	NM	NM	NM	<0.005	0.120	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.002	<0.01	
P225	1/15/2009	7.06	1370	12	62.38	896	152	41	69	4.5	236	196	NM	217	NM	NM	NM	0.007	0.130	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.002	<0.01	
P225	8/29/2009	6.89	1446	15	64.54	836	152	43	71	4.7	232	193	NM	210	NM	NM	NM	<0.005	0.122	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.002	<0.01	
P228	1/22/2008	6.12	6140	11	27.42	6620	451	934	151	5.9	4630	312	NM	128	NM	NM	NM	<0.005	<0.01	0.022	<0.01	0.153	NM	<0.005	NM	NM	NM	<0.002	1.840	
P228	4/11/2008	6.15	6470	13	23.34	6740	449	934	159	6.2	4720	303	NM	138	NM	NM	NM	<0.005	0.011	0.022	<0.01	0.142	NM	<0.005	NM	NM	NM	<0.002	1.700	
P228	7/10/2008	6.07	6570	15	23.50	6810	448	892	144	5.7	4660	296	NM	126	NM	NM	NM	<0.005	<0.01	0.022	<0.01	0.117	NM	<0.005	NM	NM	NM	<0.002	1.600	
P228	11/7/2008	5.98	6670	13	24.45	6850	463	912	151	5.5	4380	308	NM	135	NM	NM	NM	<0.005	0.010	0.022	<0.01	0.110	NM	<0.005	NM	NM	NM	<0.002	1.730	
P228	1/30/2009	6.63	6370	12	27.23	6660	460	909	158	5.9	4250	311	NM	132	NM	NM	NM	<0.005	0.010	0.020	<0.01	0.096	NM	<0.005	NM	NM	NM	<0.002	1.480	
P228	4/9/2009	6.32	6460	12	24.30	6600	443	900	154	5.8	4350	324	NM	136	NM	NM	NM	<0.005	<0.01	0.021	<0.01	0.148	NM	<0.005	NM	NM	NM	<0.002	1.760	
P228	8/6/2009	6.00	6210	16	23.22	6530	452	873	146	5.8	4640	246	NM	110	NM	NM	NM	<0.005	<0.01	0.019	<0.01	0.120	NM	<0.005	NM	NM	NM	<0.002	1.510	
P228	10/20/2009	6.28	6010	13	25.52	6520	462	898	149	4.7	4250	259	NM	131	NM	NM	NM	<0.005	<0.01	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.002	<0.01	
P241B	6/24/2008	3.29	8320	17	439.43	11900	439	1340	76	9.3	8270	122	NM	<5	NM	NM	308.00	0.014	NM	0.517	<0.01	14.700	6.43	0.008	159.000	0.0012	5.990	0.011	26.600	
P241B	6/16/2009	3.70	7450	16	446.60	9570	442	1070	68	8.5	7010	112	NM	<5	NM	NM	258.00	0.014	NM	0.596	0.011	11.030	3.13	0.058	129.000	NM	<0.01	5.510	24.100	
P241C	7/28/2008	7.08	339.22	18	339.22	6600	371	86	58	5.8	4660	260	NM	170	NM	NM	<0.02	<0.005	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	<0.0002	<0.03	0.005	<0.01	
P241C	4/11/2009	6.92	2200	12	340.58	1900	373	98	64	5.2	918	282	NM	175	NM	NM	<0.02	<0.005	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	<0.0002	<0.03	0.004	0.013	
P241C	8/29/2008	7.17	2440	17	347.70	2090	378	103	64	5.5	964	257	NM	179	NM	NM	<0.02	<0.005	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	0.0130	<0.03	0.006	<0.01	
P241C	10/28/2008	7.20	2380	14	348.22	2040	381	99	60	4.8	1010	256	NM	182	NM	NM	<0.02	<0.005	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	<0.0002	<0.03	0.004	0.072	
P241C	2/5/2009	7.24	2520	13	348.57	2120	394	105	64	5.4	1060	285	NM	175	NM	NM	<0.02	<0.005	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.005	<0.01	
P241C	4/8/2009	7.21	2430	14	350.04	2200	387	106	66	5.5	1030	279	NM	176	NM	NM	<0.02	<0.005	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.005	<0.01	
P241C	8/18/2009	7.21	2700	14	352.85	2120	406	109	66	5.8	1090	285	NM	181	NM	NM	<0.02	<0.005	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.005	<0.01	
P241C	10/7/2009	7.25	2500	14	353.73	2180	394	106	65	6.1	1090	284	NM	180	NM	NM	<0.02	<0.005	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.005	<0.01	
P242	8/19/2008	4.05	5250	16	173.66	4910	514	427	189	9.2	2960	482	NM	<5	NM	NM	NM	0.007	NM	0.270	NM	11.470	NM	<0.005	NM	0.0003	NM	0.010	NM	
P242	5/14/2009	4.33	5090	15	173.63	5020	535	447	206	9.7	2340	537	NM	<5	NM	NM	NM	0.007	NM	0.286	NM	11.120	NM	<0.005	NM	NM	NM	0.012	NM	
P244A	1/14/2008	5.01	8249	8	47.80	7340	573	833	382	6.8	3620	1430	NM	<5	NM	NM	178	26.46	0.005	NM	0.150	0.014	2.310	0.07	<0.005	37.230	<0.0002	1.570	0.024	3.600
P244A	4/15/2008	4.19	12460	13	45.05	6820	607	816	870	6.8	3150	2957	NM	<5	NM	NM	286	50.30	0.007	NM	0.155	0.088	2.630	0.34	0.007	45.300	0.0018	1.860	0.034	3.850
P244A	7/2/2008	3.87	26800	25	44.65	16200	1600	710	1780	11.0	4890	8750	NM	<5	NM	NM	920	75.00	<0.005	NM	0.190	0.019	2.780	0.14	0.011	32.300	0.0023	1.370	0.009	4.150
P244A	11/6/2008	4.44	15120	9	45.50	12000	1620	816	1760	8.6	2420	4580	NM	<5	NM	NM	884	81.00	0.006	NM	0.225	0.013	2.880	0.05	0.016	42.800	0.0031	1.480	0.009	4.470
P244A	2/19/2009	4.55	10620	10	46.53	8790	718	853	522	9.4	3120	2850	NM	<5	NM	NM	254	40.00	0.013	NM	0.190	0.048	2.240	0.20	0.009	40.600	NM	1.750	0.006	4.100
P244A	4/3/2009	4.30	11090	6	45.43	9060	700	841	588	8.9	2880	2920	NM	<5	NM	NM	277	39.60	<0.005	NM	0.200	0.030	2.160	0.15	0.006	43.900	NM	1.680	0.007	4.490
P244A	7/24/2009	4.09	14600	29	44.20	11200	1350	636	1240	10.0	2730	4380	NM	<5	NM	NM	287	48.00	0.010	NM	0.140	0.010	2.040	0.09	0.016	29.100	NM	1.160	0.008	3.660
P244A	4/30/2009	4.54	14500	9	49.65	19500	2680	551	2950	14.0	1390	8990	NM	<5	NM	NM	477	77.00	<0.005	NM	0.220	<0.01								



WELL	DATE	pH su	Cond uS/cm	Temp C	DTW Feet	TDS mg/l	Ca-T mg/l	Mg-T mg/l	Na-T mg/l	K-T mg/l	SO4 mg/l	Cl-T mg/l	F mg/l	Alk mg/l as CaCO3	Ag mg/l	Acidity mg/l as CaCO3	Al-D mg/l	As-D mg/l	Ba-D mg/l	Cd-D mg/l	Cr-D mg/l	Cu-D mg/l	Fe-D mg/l	Pb-D mg/l	Mn-D mg/l	Hg-T mg/l	Ni-D mg/l	Se-D mg/l	Zn-D mg/l
P248A	2/28/2008	4.22	2200	13	87.80	1660	182	142	54	4.1	802	208	4.9	<5	NM	387	16.40	<0.005	<0.01	0.027	<0.01	6.760	<0.02	0.015	5.019	<0.0002	0.355	0.002	3.080
P248A	5/12/2008	4.41	2220	13	87.91	1700	190	139	54	3.9	752	205	4.4	<5	NM	251	16.32	<0.005	<0.01	0.027	<0.01	6.760	<0.02	0.015	5.030	0.0005	0.362	0.002	3.310
P248A	7/11/2008	4.06	2140	16	88.02	1590	186	130	51	3.9	769	217	2.2	<5	NM	399	16.06	<0.005	<0.01	0.024	<0.01	6.890	<0.02	0.015	4.790	0.0009	0.309	0.002	3.590
P248A	12/1/2008	4.30	2170	12	88.24	1600	187	126	48	3.9	873	203	5.0	<5	NM	132	15.58	<0.005	<0.01	0.023	<0.01	6.440	<0.02	0.016	4.500	0.0004	0.360	0.003	3.290
P248A	1/28/2009	4.30	2190	11	88.46	1650	200	135	57	4.2	923	234	5.3	<5	NM	135	15.20	<0.005	0.010	0.026	<0.01	5.910	0.03	0.015	4.730	NM	0.354	0.004	3.110
P248A	5/28/2009	4.16	2080	16	88.35	1620	210	141	57	4.1	921	212	2.1	<5	NM	163	16.10	<0.005	<0.01	0.024	<0.01	6.090	0.03	0.014	4.440	NM	0.310	0.002	3.000
P248A	8/4/2009	4.01	2130	15	88.70	1570	203	136	56	4.0	945	226	4.5	<5	NM	159	16.20	<0.005	<0.01	0.024	<0.01	6.230	<0.02	0.015	4.410	NM	0.310	0.003	3.140
P248A	12/14/2009	4.42	2140	12	87.95	1600	195	136	63	4.1	965	227	6.7	<5	NM	150	17.65	<0.005	<0.01	0.023	<0.01	6.540	<0.02	0.014	4.870	NM	0.310	0.003	3.350
P248B	2/2/2008	6.26	252	12	87.89	3140	407	244	60	8.5	1960	120	NM	130	NM	26	0.85	<0.005	0.013	0.042	<0.01	1.580	<0.02	<0.005	11.530	<0.0002	0.469	<0.002	4.147
P248B	7/11/2008	6.09	3110	16	88.30	2930	408	225	58	9.0	1890	119	NM	138	NM	196	0.86	<0.005	0.013	0.032	<0.01	1.830	<0.02	<0.005	8.020	<0.0002	0.531	<0.002	3.260
P248B	1/28/2009	6.48	2980	10	88.88	2790	403	227	60	9.3	1900	123	NM	143	NM	151	0.56	<0.005	0.013	0.029	<0.01	0.800	0.03	<0.005	7.460	NM	0.346	0.002	2.690
P248B	8/4/2009	6.59	2990	19	89.11	2720	398	229	64	9.0	1740	124	NM	161	NM	10	<0.02	<0.005	0.016	0.002	<0.01	0.120	<0.02	<0.005	0.027	NM	<0.03	<0.002	0.150
P248C	2/2/2008	6.52	1337	14	84.24	886	149	61	36	3.4	401	128	NM	128	NM	NM	0.04	<0.005	0.016	0.002	<0.01	0.173	<0.02	<0.005	0.029	<0.0002	<0.03	<0.002	0.171
P248C	7/11/2008	6.51	1309	15	84.55	966	150	59	34	3.3	414	128	NM	130	NM	NM	<0.02	<0.005	0.016	0.002	<0.01	0.142	<0.02	<0.005	0.031	0.0008	<0.03	<0.002	0.167
P248C	1/25/2009	6.60	1328	11	85.08	910	153	61	35	3.5	417	136	NM	129	NM	NM	<0.02	<0.005	0.018	0.002	<0.01	0.159	<0.02	<0.005	0.031	NM	<0.03	<0.002	0.170
P248C	8/4/2009	6.43	1312	16	85.35	940	165	62	37	3.4	407	135	NM	162	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
P253A	11/25/2008	7.16	2350	14	80.21	1860	230	94	208	5.1	768	231	NM	340	NM	NM	NM	<0.005	NM	<0.001	NM	<0.02	NM	<0.005	NM	NM	NM	0.005	<0.01
P255A	10/23/2008	6.97	1123	13	39.35	676	96	28	88	3.1	196	154	NM	193	NM	NM	NM	0.046	NM	<0.001	NM	0.033	NM	<0.005	NM	NM	NM	0.002	<0.01
P256	6/3/2008	6.81	2600	14	50.83	2030	370	112	66	4.1	937	192	NM	398	NM	NM	NM	<0.005	NM	<0.001	NM	<0.02	NM	<0.005	NM	NM	NM	0.007	<0.01
P258A	8/2/2008	6.82	2980	15	NM	2320	303	116	244	6.2	1170	339	NM	228	NM	NM	NM	0.006	NM	<0.001	NM	<0.02	NM	<0.005	NM	NM	NM	0.017	0.019
P259	6/17/2008	7.00	1839	18	169.87	1140	136	47	178	7.6	272	284	NM	228	NM	NM	NM	0.005	NM	<0.001	NM	<0.02	NM	<0.005	NM	NM	NM	<0.002	<0.01
P264	5/15/2008	5.90	4370	15	400.04	4990	411	588	73	5.5	3290	124	NM	85	NM	NM	1.18	0.023	0.012	0.063	<0.01	<0.02	0.07	<0.005	91.700	NM	NM	0.050	0.050
P267B	12/16/2008	7.19	1633	12	212.87	1130	218	58	48	4.3	244	317	NM	238	NM	NM	NM	<0.005	0.082	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	0.003	<0.01
P272	4/17/2008	7.54	3830	13	76.86	3310	563	154	193	12.0	1730	281	NM	469	NM	NM	NM	0.009	0.023	<0.001	<0.01	0.028	NM	<0.005	NM	NM	NM	<0.002	0.014
P272	11/24/2008	6.61	3720	13	62.55	3380	599	156	192	12.0	1660	311	NM	461	NM	NM	NM	<0.005	0.028	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.002	0.014
P272	5/26/2009	7.58	3930	15	79.50	3470	617	166	193	12.0	1680	314	NM	460	NM	NM	NM	<0.005	0.026	<0.001	<0.01	<0.02	NM	<0.005	NM	NM	NM	<0.002	<0.01
P272	11/24/2009	6.59	4356	15	79.95	3490	590	157	189	13.0	1800	366	NM	506	NM	NM	NM	0.028	<0.001	<0.01	<0.02	<0.02	NM	<0.005	NM	NM	NM	<0.002	<0.01
P273	8/3/2008	6.73	3780	14	302.43	2850	593	177	75	5.1	1510	353	NM	160	NM	NM	<0.02	<0.005	0.021	<0.001	<0.01	<0.02	<0.005	<0.01	<0.002	<0.03	<0.004	<0.01	
P273	8/28/2009	6.98	3670	17	307.68	2890	570	173	81	5.4	1120	745	NM	144	NM	NM	<0.02	<0.005	0.021	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.005	<0.01
P277	5/22/2008	7.14	3160	15	379.73	2760	480	146	90	5.1	1720	167	NM	211	NM	NM	<0.02	<0.005	0.016	<0.001	<0.01	<0.02	0.08	<0.005	<0.01	<0.0002	<0.03	0.004	<0.01
P277	7/16/2008	6.92	3310	16	380.95	3000	501	147	85	4.4	1640	185	NM	207	NM	NM	0.04	<0.005	0.016	<0.001	<0.01	<0.02	<0.02	<0.005	0.014	0.0005	<0.03	0.004	0.016
P277	7/22/2009	7.05	2640	20	388.21	2410	415	125	85	3.5	1360	229	NM	186	NM	NM	<0.02	<0.005	0.014	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.004	<0.01
SRG94B	1/9/2009	3.41	13630	13	99.88	24700	418	2610	215	4.4	18000	195	NM	<5	NM	5910	955.00	0.036	NM	0.480	0.056	740.000	43.84	<0.005	225.00	0.004	12.160	0.016	72.206
SRG94B	1/5/2009	3.54	13030	11	124.18	24600	407	2630	196	5.0	18600	171	NM	<5	NM	6370	953.00	0.015	NM	0.460	0.060	63.300	47.10	<0.005	211.000	NM	11.500	0.032	72.300
SRG94B	4/20/2009	3.49	14140	15	123.43	23700	435	2650	215	5.4	17700	185	NM	<5	NM	6230	900.00	0.033	NM	0.500	0.069	62.700	36.70	<0.005	209.000	NM	11.160	0.027	67.700
W185	7/2/2008	7.06	1184	18	135.00	986	171	45	47	2.2	401	89	NM	275	NM	NM	<0.005	NM	<0.001	NM	<0.02	NM	<0.005	NM	NM	NM	NM	0.002	0.043
W185	11/20/2009	7.03	1009	11	135.00	652	119	30	43	6.1	96	178	NM	198	NM	NM	NM	<0.005	NM	<0.001	NM	0.069	NM	<0.005	NM	NM	NM	0.002	0.070
W189	7/16/2008	7.28	806	14	200.00	516	84	32	38	2.8	101	120	0.1	170	NM	NM	NM	0.006	0.061	<0.001	NM	<0.02	NM	<0.005	NM	<0.0002	NM	<0.002	0.093
W189	7/21/2008	7.09	938	20	200.00	594	85	33	40	2.9	105	123	0.2	171	NM	NM	NM	0.007	0.060	<0.001	NM	<0.02	NM	<0.005	NM	<0.0002	NM	<0.002	0.080
W189	7/21/2009	6.77	846	20	200.00	478	88	33	42	2.4	93	122	0.1	164	NM	NM	NM	<0.005	0.056	<0.001	NM	<0.02	NM	<0.005	NM	NM	<0.002	<0.002	0.130
W22	2/11/2008	7.40	1416	15	NM	856	165	49	48	4.8	235	156	NM	289	NM	NM	<0.02	<0.005	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.002	0.010
W22	6/27/2008	7.06	1419	14	NM	944	161	47	45	4.3	224	160	0.2	286	<0.001	NM	0.04	<0.005	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.002	<0.01
W22	9/23/2008	7.26	1331	13	NM	960	160	47	47	4.7	214	153	NM	280	<0.001	NM	<0.02	<0.005	NM	<0.001	<0.01	<0.02	NM	<0.005	<0.01	NM	<0.03	0.002	<0.01
W22	12/16/2008	7.32	1278	12	NM	874	168	47	43	4.5	245	160	NM	287	<0.001	NM	<0.02	<0.005	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03</		



WELL	DATE	pH su	Cond uS/cm	Temp C	DTW Feet	TDS mg/l	Ca-T mg/l	Mg-T mg/l	Na-T mg/l	K-T mg/l	SO4 mg/l	Cl-T mg/l	F mg/l	Alk mg/l as CaCO3	Ag mg/l	Acidity mg/l as CaCO3	Al-D mg/l	As-D mg/l	Ba-D mg/l	Cd-D mg/l	Cr-D mg/l	Cu-D mg/l	Fe-D mg/l	Pb-D mg/l	Mn-D mg/l	Hg-T mg/l	Ni-D mg/l	Se-D mg/l	Zn-D mg/l
WJG1154C	4/23/2008	7.19	831	15	360.58	496	73	30	55	3.2	102	88	NM	183	NM	NM	<0.02	0.012	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	<0.0002	<0.03	0.004	<0.01
WJG1154C	10/6/2008	7.38	788	16	344.08	480	64	25	48	2.8	105	89	NM	177	NM	NM	<0.02	0.013	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	<0.0002	<0.03	<0.002	0.020
WJG1154C	1/26/2009	7.47	821	16	338.75	474	76	30	53	3.4	125	90	NM	175	NM	NM	<0.02	0.012	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	<0.002	<0.01
WJG1154C	7/30/2009	7.38	745	19	342.34	474	71	27	48	2.9	102	90	NM	176	NM	NM	<0.02	0.011	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	<0.002	<0.01
WJG1169A	1/2/2008	7.12	2220	12	407.73	1720	311	86	103	4.3	467	449	0.1	184	NM	NM	<0.02	<0.005	0.023	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	<0.0002	<0.03	0.004	0.013
WJG1169A	6/20/2008	7.17	2470	18	409.93	1750	288	80	96	4.0	459	482	NM	181	NM	NM	<0.02	0.006	0.023	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	<0.0002	<0.03	0.003	<0.01
WJG1169A	7/22/2008	6.85	2350	17	410.50	1910	314	85	103	4.2	488	471	0.1	191	NM	NM	<0.02	<0.005	0.021	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	<0.0002	<0.03	0.003	0.011
WJG1169B	7/25/2008	6.97	2140	17	410.28	1710	286	89	89	3.9	455	383	0.1	171	NM	NM	<0.02	<0.005	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	<0.0002	<0.03	0.003	0.014
WJG1169B	4/7/2009	7.17	2140	14	416.66	1600	271	80	78	3.7	507	390	0.1	173	NM	NM	<0.02	<0.005	0.026	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.004	<0.01
WJG1169B	7/29/2009	7.23	2190	16	16.50	1600	275	81	79	3.8	463	376	0.1	166	NM	NM	0.03	0.006	0.026	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	0.004	<0.01
WJG1170B	5/19/2008	7.18	1129	18	389.11	742	124	43	43	4.6	260	113	NM	144	NM	NM	<0.02	0.011	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	<0.0002	<0.03	0.002	0.010
WJG1170B	5/7/2009	7.43	1056	16	391.04	794	133	48	44	4.8	339	117	NM	146	NM	NM	<0.02	0.012	NM	<0.001	<0.01	<0.02	NM	<0.005	<0.01	NM	<0.03	NM	<0.01
WJG1171A	6/6/2008	7.17	954	16	314.12	614	104	36	38	2.6	177	116	NM	152	NM	NM	<0.02	0.006	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	<0.0002	<0.03	0.002	<0.01
WJG1171A	11/4/2008	7.50	942	13	320.84	600	114	36	40	2.7	177	112	NM	155	NM	NM	<0.02	0.007	NM	0.002	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	<0.002	0.018
WJG1171A	7/20/2009	7.28	927	18	323.69	680	107	35	38	2.2	172	114	NM	151	NM	NM	<0.02	0.005	NM	<0.001	<0.01	<0.02	<0.02	<0.005	<0.01	NM	<0.03	<0.002	<0.01



## Appendix B

### Groundwater Level Monitoring Data

**Table B-1 Water Elevation Data 1996, 2003-2009**

Well	Sept 1996	April 2003	Sept 2003	April 2004	Sept 2004	April 2005	Sept 2005	April 2006	Sept 2006	April 2007	Sept 2007	Sept 2008	Sept 2009
ABC01	5248.52	5247.67	5246.12	5245.22	5244.5	5244.31	5244.44	5245.30	5245.40	5245.18	5244.50	5243.13	5242.30
ABC02	5154.91	5150.22	5149.94	BLOCKED	BLOCKED	BLOCKED	BLOCKED	BLOCKED	BLOCKED	BLOCKED	BLOCKED	BLOCKED	5141.92
ABC03	4525.27	4519.87	4519.23	4518.16	4517.67	4517.04	4516.67	ABANDONED	ABANDONED	ABANDONED	ABANDONED	ABANDONED	ABANDONED
ABC04	5147.90	5146.69	BLOCKED	BLOCKED	BLOCKED	BLOCKED	BLOCKED	BLOCKED	BLOCKED	BLOCKED	BLOCKED	5138.62	5137.95
ABC04A	5170.00	5153.68	BLOCKED	BLOCKED	BLOCKED	BLOCKED	BLOCKED	BLOCKED	BLOCKED	BLOCKED	BLOCKED	BLOCKED	BLOCKED
ABC05	4734.26	NM	4702.51	4694.36	4687.92	4681.10	4676.73	4673.73	4670.48	4671.15	4687.92	4658.38*	4652.92
ABC06	5016.32	5041.58	5045.02	5035.31	5010.05	5026.24	5034.36	5028.81	5017.41	5022.52	5010.05	4992.78	4967.48
ABC07	5252.31	5250.12	5248.79	5247.95	5247.21	5247.21	5247.46	5248.97	5248.53	5248.11	5247.21	5246.09	5245.49
ABC08	4602.38	4590.58	4597.64	4590.38	4595.73	4589.81	4594.53	ABANDONED	ABANDONED	ABANDONED	ABANDONED	ABANDONED	ABANDONED
B1G1120A	4830.22	4811.64	4809.02	4806.25	4805.52	4801.96	4799.65	4796.60	4794.77	4792.25	4805.52	4784.63	4787.69
B1G1120B	4831.46	NM	4810.32	NM	4806.6	NM	4802.44	NM	4796.97	NM	4806.60	4786.42	4780.23
B1G1120C	4832.13	NM	4810.83	NM	4807.25	NM	4802.29	NM	4796.47	NM	4807.25	4786.25	4780.24
B1G951	5177.92	5176.07	5175.75	5176.23	5174.98	5175.38	5175.76	5176.54	5176.42	5176.32	5174.98	5174.45	5174.33
B2G1157A	4621.07	4589.2	4581.33	4587.25	4582.16	4593.45	4581.24	4589.70	4574.63	4576.30	4582.16	4559.90	DRY
B2G1157B	4622.82	NM	4579.43	NM	4579.96	4593.77	4579.69	NM	4573.06	NM	4579.96	4561.76	4560.16
B2G1157C	4622.17	NM	4578.62	NM	4577.67	4593.81	4576.53	NM	4570.82	NM	4577.67	4558.22	4556.49
B2G1176A	Not Drilled Yet	4704.75	4701.96	4694.05	4688.11	4680.45	4675.77	4672.95	4669.74	4669.39	4688.11	4658.72	4651.68
B2G1176B	Not Drilled Yet	NM	4702.55	NM	4688.61	NM	4676.21	NM	4670.16	NM	4688.61	4659.00	4651.94
B2G1176C	Not Drilled Yet	NM	4702.96	NM	4689.05	NM	4676.73	NM	4670.63	NM	4689.05	4658.62	4652.74
B2G1193	Not Drilled Yet	NM	NM	NM	4569.09	NM	4561.20	NM	NM	NM	NM	NM	4539.47
B2G1194A	Not Drilled Yet	4593.7	NM	4591.05	4583.64	4591.82	4586.89	4588.99	4579.44	4582.17	4583.64	4568.85	4566.88
B2G1194B	Not Drilled Yet	NM	NM	NM	4583.58	NM	4586.96	NM	4579.35	NM	4583.58	4568.71	4566.71
B3G1197A	Not Drilled Yet	4599.66	NM	4595.29	4589.76	4592.71	4592.19	4592.28	4585.27	4582.17	4589.76	4575.30	4572.75
B3G1197B	Not Drilled Yet	NM	NM	NM	4591.46	NM	4592.33	NM	4585.22	NM	4591.46	4575.27	4572.69
B3G1197C	Not Drilled Yet	NM	NM	NM	4592.13	NM	4592.64	NM	4585.28	NM	4592.13	4575.27	4572.75
BFG1136A	4730.71	4703.85	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
BFG1136B	4730.90	NM	4700.43	4692.68	4686.48	4679.31	4673.10	4671.40	4668.49	4667.37	4686.48	4657.68	4651.18
BFG1136C	4731.37	NM	4700.65	NM	4686.72	NM	4673.52	NM	4668.93	NM	4686.72	4657.85	4651.38
BFG1155B	4613.77	4588.84	4579.31	4586.89	4579.02	4590.83	4582.20	4587.73	4573.71	4577.55	4579.02	4562.98	DRY
BFG1155C	4611.01	NM	4578.26	NM	4578.01	NM	4581.20	NM	4572.84	NM	4578.01	4562.51	4561.84
BFG1155D	4619.46	NM	4577.9	NM	4577.65	NM	4580.98	NM	4572.46	NM	4577.65	4561.05	4559.81
BFG1155E	4619.50	NM	4578.75	NM	4578.23	NM	4581.38	NM	4572.46	NM	4578.23	4560.38	4557.77
BFG1155F	4619.79	NM	4578.8	NM	4578.41	NM	4581.62	NM	4573.03	NM	4578.41	4561.21	4558.58
BFG1156A	4619.72	4590.22	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
BFG1156B	4619.55	NM	4581.97	4588.38	4581.61	4591.63	4583.61	4588.40	4575.12	4578.71	4581.61	4564.81	4562.99
BFG1156C	4620.78	NM	4583.05	NM	4582.8	NM	4584.57	NM	4577.04	NM	4582.80	4565.97	4564.17
BFG1156D	4620.10	NM	4582.63	NM	4582.31	NM	4584.29	NM	4576.57	NM	4582.31	4565.48	4563.70
BFG1156E	4620.28	NM	4583.48	NM	4583.57	NM	4587.43	NM	4579.44	NM	4583.57	4568.12	4563.78
BFG1156F	4620.36	NM	4583.14	NM	4582.12	NM	4584.63	NM	4576.99	NM	4582.12	4565.87	4564.05
BFG1168A	4733.15	4706.44	4702.81	4695.09	4688.86	4681.50	4674.70	4673.54	4670.60	4669.39	4688.86	4659.89	4652.84
BFG1168B	4733.44	NM	4703.16	NM	4689.2	NM	4674.98	NM	4670.96	NM	4689.20	4660.21	4653.20
BFG1168C	4733.62	NM	4703.22	NM	4689.33	NM	4675.03	NM	4671.16	NM	4689.33	4660.43	4653.40
BFG1195A	Not Drilled Yet	4589.97	4581.35	4588.13	4581.37	4592.33	4582.67	4588.68	4575.18	4577.84	4581.37	4563.86	4562.18
BFG1195B	Not Drilled Yet	NM	4581.59	NM	4581.54	NM	4582.78	NM	4575.42	NM	4581.54	4564.04	4562.30
BFG1198A	Not Drilled Yet	4706.08	4702.33	NM	4688.36	4681.08	4674.26	4673.20	4670.30	4669.15	4688.36	4659.57	DRY
BFG1198B	Not Drilled Yet	NM	4702.51	NM	4688.59	NM	4674.50	NM	4670.48	NM	4688.59	4659.69	4652.80
BFG1198C	Not Drilled Yet	NM	4702.64	NM	4688.78	NM	4674.65	NM	4670.69	NM	4688.78	4659.99	4653.12
BFG1200	4487.25	NM	NM	4548.55	NM	NM	4513.14	NM	NM	NM	NM	NM	4400.91
BRG286	5580.55	NM	5569.4	5568.59	5569.37	5569.77	5574.47	5575.15	5573.09	5577.55	5569.37	5572.09	5571.03
BRG287	5349.53	NM	5340.96	5339.96	5338.55	5337.82	5342.95	5343.30	5346.26	5345.12	5338.55	5338.31	5335.59



Well	Sept 1996	April 2003	Sept 2003	April 2004	Sept 2004	April 2005	Sept 2005	April 2006	Sept 2006	April 2007	Sept 2007	Sept 2008	Sept 2009
BRG288	5346.60	5345.96	5344.95	5344.1	5344.25	5345.49	5349.68	5351.59	5356.01	5356.54	5353.52	5348.54	5353.83
BRG289	5346.41	5345.62	5344.62	5343.85	5343.95	5345.36	5349.66	5351.35	5356.09	5356.30	5353.21	5347.41	5353.87
BRG290	5317.73	5314.51	5313.12	5311.35	5310.62	5309.98	5312.23	5313.56	5315.36	5315.87	5310.62	5311.18	5310.65
BRG291A	5538.33	5527.34	5525.41	5526.98	5527.72	5529.84	5532.22	5531.90	5532.95	5529.22	5527.72	5524.38	5525.43
BRG919	5602.87	5599.41	5598.44	5600.17	5601.05	5602.36	5603.19	5602.81	5603.83	5602.00	5601.05	5601.01	5602.06
BRG920	5540.63	5530.2	5528.3	5536.44	5534.55	5544.54	5540.83	5543.55	5540.08	5533.91	5534.55	5531.25	5534.53
BRG921	5333.68	5324.81	5322.75	5320.58	5317.59	5316.60	5318.39	5319.26	5320.74	5320.68	5317.59	5315.85	5313.67
BRG999	5333.06	5323.74	5321.67	5319.45	5318.2	5317.29	5318.78	5320.39	5321.10	5321.14	5318.20	5316.39	5314.39
BSG1119A	4648.58	4620.15	4615.97	4615.01	4611.38	4610.44	4606.79	4605.45	4601.07	4598.41	4611.38	4589.64	DRY
BSG1119B	4650.84	NM	4616.71	NM	4613.26	NM	4608.82	NM	4603.10	NM	4613.26	4590.74	4586.45
BSG1119C	4741.05	NM	4715.71	NM	4707.68	NM	4698.69	NM	4692.39	NM	4707.68	4683.22	4676.85
BSG1125A	4735.89	4712.5	4707.97	4698.72	4691.75	4686.03	4684.64	4682.27	NM	DRY	DRY	DRY	DRY
BSG1125B	4735.81	NM	4707.4	NM	4691.53	NM	4684.43	NM	NM	NM	4691.53	4665.84	4657.97
BSG1125C	4735.96	NM	4705.94	NM	4690.46	NM	4682.58	NM	NM	NM	4690.46	4662.46	4656.44
BSG1130A	4636.18	4605.08	4601.84	4601.71	4599.52	4598.31	4598.54	4596.50	4594.29	4592.42	4599.52	4585.24	4581.80
BSG1130B	4633.41	NM	4598.19	NM	4595.82	NM	4596.24	NM	4591.15	NM	4595.82	4581.50	4578.39
BSG1130C	4631.02	NM	4595.8	NM	4593.77	NM	4595.44	NM	4589.25	NM	4593.77	4579.18	4576.48
BSG1132A	4627.63	4598.96	4591.72	4595.37	4590.07	4594.65	4591.27	4592.28	4585.47	4586.02	4590.07	4575.43	4572.71
BSG1132B	4626.80	NM	4590.61	NM	4589.02	NM	4590.94	NM	4584.40	NM	4589.02	4574.17	4571.60
BSG1132C	4623.45	NM	4586.61	NM	4584.79	NM	4587.37	NM	4580.23	NM	4584.79	4569.51	4567.42
BSG1133A	4633.99	4609.55	4599.54	4600.58	4597.14	4598.63	4595.70	4595.03	4590.84	4589.35	4597.14	4581.52	DRY
BSG1133B	4634.98	NM	4600.33	NM	4597.79	4599.80	4596.24	NM	4591.03	NM	4597.79	4580.26	4576.45
BSG1133C	4623.55	NM	4586.27	NM	4584.17	NM	4585.79	NM	4579.05	NM	4584.17	4568.02	4565.65
BSG1135A	4637.84	4607.17	4604.89	4603.14	4601.74	4599.64	4600.64	4598.36	4597.38	4595.04	4601.74	NM	DRY
BSG1135B	4635.65	NM	4601.33	NM	4598.72	NM	4598.47	NM	4594.18	NM	4598.72	4585.03	4582.01
BSG1135C	4629.39	NM	4594.35	NM	4592.41	NM	4594.11	NM	4588.16	NM	4592.41	4578.05	4575.52
BSG1137A	4627.75	4599.61	4592.97	4595.84	4591.36	4593.27	4593.03	4591.90	4587.51	4587.34	4591.36	4577.97	4575.04
BSG1137B	4625.46	NM	4591.18	NM	4589.45	NM	4593.41	NM	4586.05	NM	4589.45	4576.36	4573.69
BSG1137C	4624.32	NM	4590.42	NM	4588.57	NM	4592.31	NM	4585.49	NM	4588.57	4575.59	4573.04
BSG1148A	4736.19	NM	4706.23	4697.5	4690.89	4684.62	4681.67	4679.86	4675.74	4674.40	4690.89	4663.08	4657.05
BSG1148B*	4736.09	NM	4704.74	NM	4689.67	NM	4679.91	NM	4673.94	NM	4689.67	4660.68	4655.97
BSG1148C*	4735.77	NM	4704.56	NM	4689.77	NM	4679.77	NM	4673.26	NM	4689.77	4660.21	4655.30
BSG1153A	4776.70	4767.71	4765.97	4762.25	4761.42	NM	4751.44	4748.74	4747.18	4745.13	4761.42	4739.35	4733.60
BSG1153B	4743.53	NM	4727.42	NM	4741.41	NM	4745.13	NM	4750.89	NM	4750.81	4745.30	4749.47
BSG1153C	4853.21	NM	4776.8	NM	4777.65	NM	4785.33	NM	4793.66	NM	4784.86	4784.61	4785.17
BSG1177A	4730.63	4706.71	4697.83	4689.39	4683.42	4676.04	4671.96	4669.16	4666.21	4666.21	4683.42	4654.44	4649.61
BSG1177B	4732.41	NM	4698.8	NM	4684.22	NM	4672.41	NM	4666.45	NM	4684.22	4654.41	4649.35
BSG1177C	4735.53	NM	4706.25	NM	4691.98	NM	4680.14	NM	4674.12	NM	4691.98	4661.97	4656.53
BSG1179A	4732.71	NM	4704.21	4695.72	4689.07	4682.72	4679.31	4677.18	4673.85	4672.32	4689.07	4661.40	4655.43
BSG1179B	4732.27	NM	4702.99	NM	4688.24	NM	4677.51	NM	4671.21	NM	4688.24	4657.37	4653.17
BSG1179C	4734.12	NM	4704.36	NM	4689.54	NM	4674.41	NM	4672.32	NM	4689.54	4658.59	4654.21
BSG1180A	4729.60	4706.79	4700.56	4692.07	4685.83	4678.59	4674.34	4671.68	4668.56	4668.66	4685.83	4655.45	4649.89
BSG1180B	4731.31	NM	4701.99	NM	4687.06	NM	4675.45	NM	4669.27	NM	4687.06	4656.53	4651.61
BSG1180C	4733.39	NM	4704.1	NM	4689.84	NM	4678.32	NM	4671.79	NM	4689.84	4659.31	4654.12
BSG1196A	4723.17	4706.4	4700.31	4691.96	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
BSG1196B	4723.76	NM	4700.79	NM	4686.33	4679.03	4674.76	4672.05	4668.95	4668.97	4686.33	4655.76	4651.23
BSG1196C	4726.16	NM	4702.9	NM	4688.05	NM	4676.18	NM	4670.25	DRY	4688.05	4656.74	4652.31
BSG1201	Not Drilled Yet	NM	4669.07	4675.02	4669.47	4664.09	4659.78	NM	NM	NM	NM	NM	4625.27
BSG2777A	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	4673.24	4676.64	4673.67	4662.48	4658.82
BSG2777B	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	4675.42	NM	4672.65	4661.35	4657.57
BSG2778A	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	4786.13	4784.70	4782.05	4776.50	4770.33
BSG2778B	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	4793.73	NM	4789.13	4783.80	4777.69



Well	Sept 1996	April 2003	Sept 2003	April 2004	Sept 2004	April 2005	Sept 2005	April 2006	Sept 2006	April 2007	Sept 2007	Sept 2008	Sept 2009
BSG2779A	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	4620.84	4586.86	4585.67	4585.68	4579.47
BSG2779B	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	4590.96	4592.07	4584.86	4584.85	4578.55
BSG2779C	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	4584.86	NM	4577.13	4577.14	4571.67
BSG2782A	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	4674.88	4672.41	4674.77	4660.84	4659.18
BSG2782B	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	4672.28	NM	4674.67	4661.39	4652.02
BSG2782C	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	NM	NM	4676.55	4660.85	4667.68
BSG2783A	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	4677.72	4677.40	4675.06	4664.37	4660.19
BSG2783B	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	4673.90	4674.90	4675.35	4664.69	4660.31
BSG2783C	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	Not Drilled Yet	4678.00	4677.90	4676.51	4665.12	4661.09
COG1149A	5240.65	NM	NM	NM	5238.72	5238.32	5238.54	5237.40	5237.09	NM	5236.68	5235.81	5235.38
COG1149B	5214.97	NM	NM	NM	5213.32	NM	5213.63	NM	5214.97	NM	5214.13	5212.92	5211.37
COG1149C	5213.69	NM	NM	NM	5212.49	NM	5212.96	NM	5213.69	NM	5212.83	5211.39	5211.77
COG1150A	5213.46	5214.63	5214.31	5213.66	5213.86	5214.12	5214.66	5215.35	5215.10	NM	5214.20	5212.89	5210.99
COG1150B	5213.20	NM	5213.54	NM	5213.11	NM	5213.81	NM	5214.33	NM	5213.42	5211.98	5210.35
COG1150C	5035.22	NM	5039.13	NM	5043.71	NM	5050.23	NM	5055.14	NM	5056.15	5056.18	5056.19
COG1151A	5221.97	NM	NM	5220.71	5220.41	5219.96	5220.25	5219.59	5219.55	5219.89	5219.90	5218.94	5218.33
COG1151B	5233.56	NM	NM	NM	5231.9	NM	5222.07	NM	5230.52	NM	5230.24	5229.18	5228.57
COG1151C	5213.08	NM	NM	NM	5213.55	NM	5213.88	NM	5214.53	NM	5213.65	5212.36	5211.01
COG1151D	5210.88	NM	NM	NM	5211.2	NM	5211.67	NM	5212.45	NM	5211.47	5209.91	5208.48
COG1152A	5178.70	NM	NM	5175.41	5175.79	5175.18	5176.65	5177.09	5177.65	5177.70	5176.97	5175.24	5176.15
COG1152B	5209.14	NM	NM	NM	5205.52	NM	5205.54	NM	5205.70	NM	5205.11	5203.59	5204.30
COG1152C	5175.61	NM	NM	NM	5174.59	NM	5175.04	NM	5175.67	NM	5175.32	5173.24	5172.28
COG1158A	5237.93	5238.7	5238.13	5237.23	5236.83	5236.64	5237.82	5235.66	5235.39	NM	5234.99	5234.08	5233.56
COG1158B	5227.30	NM	5229.97	NM	5229.67	NM	5229.72	NM	5229.41	NM	5229.18	5228.41	5227.90
COG1158C	5222.27	NM	5222.71	NM	5222.26	NM	5222.73	NM	5222.93	NM	5222.45	5221.43	5220.50
COG1175A	4844.45	4825.11	4822.43	4819.32	4817.27	4814.08	4811.48	4808.93	4806.96	4804.37	4802.15	4796.61	4789.81
COG1175B	4845.20	NM	4823.08	NM	4817.93	NM	4812.10	NM	4807.52	NM	4802.79	4797.21	4791.35
COG1175C	4846.28	NM	4823.84	NM	4818.93	NM	4812.87	NM	4808.27	NM	4803.45	4797.94	4792.13
COG1178A	4847.41	4827.54	4824.86	4821.7	4819.89	4816.40	4813.79	4811.20	4809.09	4806.23	4804.24	4798.63	4792.93
COG1178B	4847.54	NM	4824.92	NM	4819.63	NM	4813.87	NM	4809.15	NM	4804.21	4798.64	4793.01
COG1178C	4847.67	NM	4825.06	NM	4819.76	NM	4813.98	NM	4809.27	NM	4804.38	4798.79	4793.12
COG918	5219.30	NM	NM	NM	5219.07	NM	NM	5220.58	5220.74	5220.91	5219.53	5218.08	NM
CPG950	5144.20	NNM	NM	NM	NM	5140.54	5146.55	5141.31	5142.53	5140.36	5140.46	5137.31	5135.45
ECG1112A	5242.10	NM	NM	NM	5239.4	NM	NM	5240.15	5243.07	5242.45	5241.17	5240.72	NM
ECG1112B	5255.63	NM	NM	NM	5252.61	NM	NM	NM	5255.02	NM	5253.54	5252.80	NM
ECG1113A	5174.57	5172.39	5171.84	5171.03	5170.26	5169.19	5168.48	5167.82	5167.40	5166.86	5166.51	5165.05	5163.50
ECG1113B	5141.45	NM	5143.65	NM	5139.66	NM	5139.99	NM	5137.18	NM	5133.23	5130.22	5128.33
ECG1113C	5143.17	NM	5144.92	NM	5140.68	NM	5141.20	NM	5138.28	NM	5134.13	5131.19	5129.45
ECG1114A	5330.38	5328.5	5327.31	5325.77	5324.94	5323.81	5324.06	5323.80	5324.28	5323.79	5323.60	5321.49	5319.60
ECG1114B	4985.46	NM	4979.55	NM	4978.81	4978.29	4978.17	4977.58	4977.19	4976.41	4976.05	4974.54	4974.51
ECG1115A	4987.44	4946.96	4945.42	4937.51	4927.49	4910.61	4898.46	NM	4877.01	4867.42	4863.86	4852.33	4869.94
ECG1115B	4995.06	NM	4948.99	NM	4930.81	NM	4900.03	NM	4880.41	NM	4869.00	4855.83	4874.70
ECG1115C	4995.93	NM	4948.7	NM	4931.24	NM	4903.18	NM	4882.37	NM	4871.45	4843.38	4877.91
ECG1115D	5000.88	NM	4958.33	NM	4939.96	NM	4910.67	NM	4891.10	NM	4877.95	4866.90	4883.92
ECG1115E	4933.83	NM	4932.44	NM	4931.73	NM	4932.73	NM	4932.60	NM	4932.13	4931.99	4931.03
ECG1116A	4979.03	4938.31	4937.55	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
ECG1116B	4979.18	NM	4940.94	4936.01	4929.84	4924.87	4922.86	4921.64	4920.76	4920.37	4920.50	4921.49	4920.66
ECG1116C	5118.19	NM	5117.15	NM	5114.8	NM	5115.13	Dry	5113.15	NM	5110.37	5105.36	5105.10
ECG1117A	4984.54	4945.98	4943.76	4936.03	4926.05	4908.71	4896.41	4883.83	4875.70	4865.80	4861.57	4851.12	4866.94
ECG1117B	4994.69	NM	4952.91	NM	4935.08	NM	4905.26	NM	4885.22	NM	4871.41	4860.22	4874.45
ECG1117C	4999.57	NM	4958.96	NM	4941.35	NM	4911.63	NM	4891.61	NM	4876.93	4866.90	4879.70
ECG1118A	4842.88	4804.76	4803.79	4798.54	4794.74	4791.94	4789.02	4786.14	4783.96	4781.60	4779.03	4771.68	4767.48



Well	Sept 1996	April 2003	Sept 2003	April 2004	Sept 2004	April 2005	Sept 2005	April 2006	Sept 2006	April 2007	Sept 2007	Sept 2008	Sept 2009
ECG1118B	4846.47	NM	4805.18	NM	4798.83	NM	4793.16	NM	4787.94	NM	4782.85	4777.48	4771.36
ECG1118C	4847.31	NM	4807.55	NM	4802.04	NM	4796.04	NM	4790.74	NM	4785.83	4780.63	4774.56
ECG1121A	4826.43	4808.36	4806.48	4803.27	4800.29	4797.57	4795.23	4792.47	4789.93	4787.75	4785.60	4779.79	4773.48
ECG1121B	4827.77	NM	4807.01	NM	4801.4	NM	4795.36	NM	4789.85	NM	4785.02	4779.53	4773.43
ECG1121C	4827.98	NM	4807.16	NM	4801.52	NM	4795.42	NM	4790.28	NM	4785.49	4779.91	4773.79
ECG1124A	4979.71	4938.69	4937.78	4929.35	4917.36	4899.38	4880.61	4872.33	DRY	NM	DRY	DRY	DRY
ECG1124B	5008.04	NM	4935.66	NM	4912.98	NM	4886.55	NM	4864.87	4855.59	4865.23	4839.16	4875.22
ECG1124C	4998.44	NM	4955.68	NM	4937.23	NM	4907.90	NM	4888.26	NM	4874.36	4864.00	4880.81
ECG1128A	4981.67	4936.06	4934.65	4926.24	4915.13	4897.55	4885.71	4873.66	4865.47	4856.44	4855.55	4839.42	4868.18
ECG1128B	4967.87	NM	4932.08	NM	4916.66	NM	4891.45	NM	4873.44	NM	4861.55	4849.46	4872.16
ECG1128C	4991.72	NM	4940.6	NM	4920.71	NM	4890.65	NM	4870.75	NM	4859.44	4843.78	4874.23
ECG1131A	4915.09	4905.21	4903.83	4900.22	4897.72	4891.28	4886.09	4880.92	4876.95	4872.00	4869.18	4864.76	4864.38
ECG1131B	4937.28	NM	4913.07	NM	4882.39	NM	4890.51	NM	4869.05	NM	4858.50	4849.69	4862.88
ECG1131C	4951.90	NM	4920.14	NM	4905.79	NM	4891.13	NM	4868.43	NM	4854.09	4843.66	4862.27
ECG1142A	4993.80	4944.45	4943.49	4933.69	4923.63	4905.85	4893.24	4880.81	4872.92	4862.64	4862.22	4845.77	4875.53
ECG1142B	4981.68	NM	4967.92	NM	4961.3	NM	4948.83	NM	4938.44	NM	4929.37	4925.65	4922.07
ECG1142C	4966.43	NM	4963.76	NM	4961.73	NM	4959.43	NM	4955.81	NM	4951.11	4947.75	4944.55
ECG1143A	5057.68	5051.49	5052.95	5053.13	5049.58	5048.24	5048.05	5047.50	5044.74	5042.91	5039.14	5032.48	5028.11
ECG1143B	5007.25	NM	5050.78	NM	5025.48	NM	5041.24	NM	5025.61	NM	5000.92	5002.79	4993.01
ECG1143C	5043.05	NM	5076.99	NM	5048.94	NM	5068.01	NM	5052.68	NM	5029.82	5038.17	5026.05
ECG1144A	4860.65	4847.78	4845.8	4843.91	4842.48	4839.77	4837.41	4834.37	4832.03	4829.46	4826.94	4820.45	4809.78
ECG1144B	4987.18	NM	4942.32	NM	4922.41	NM	4891.86	4880.38	4871.22	4860.90	4860.67	4844.98	4868.93
ECG1144C	4989.43	NM	4946.67	NM	4928.33	NM	4898.76	NM	4877.79	NM	4860.38	4852.97	4870.56
ECG1145A	4980.60	4935.64	4934.72	4925.62	4915.23	4897.70	4885.49	4872.99	4864.96	4854.42	4852.60	4837.98	4867.00
ECG1145B	4988.25	NM	4937.76	NM	4916.54	NM	4887.29	4875.23	4867.55	NM	4859.70	4839.84	4872.61
ECG1145C	4990.46	NM	4940.27	NM	4920.11	NM	4890.11	NM	4869.86	NM	4860.64	4842.36	4872.89
ECG1146	4991.52	4921.8	4921.28	4908.4	4898.52	4880.32	4867.55	4856.71	4847.39	4834.30	NM	4817.36	4870.22
ECG1182A	NM	5571.77	5571.76	5567.55	5567.23	5565.93	5567.37	5569.85	5562.27	5567.48	5567.29	5563.20	5566.59
ECG1182B	5579.53	NM	5574.82	NM	5574.33	5576.40	5576.33	5576.99	5575.98	5576.76	5574.53	5574.07	5574.49
ECG1183A	5421.43	5418.56	5417.16	5421.02	5419.11	5421.57	5420.73	5424.93	5419.32	5419.02	5417.47	5417.28	5417.54
ECG1183B	5431.62	NM	5427.85	NM	5429.15	NM	5430.39	NM	5429.69	NM	5428.02	5427.72	5427.74
ECG1184	5410.65	5414.45	5404.15	5413.79	5404.19	NM	5404.72	5427.93	5404.22	5414.97	5403.05	5404.92	5405.67
ECG1186	5329.04	5327.98	5326.78	5325.3	5324.71	5323.41	5323.28	5323.02	5323.22	5322.96	5322.84	5321.14	5319.29
ECG1187	5333.39	5331.08	5329.99	5328.45	5327.66	5326.31	5326.09	5325.85	5325.92	5325.65	5325.64	5324.01	5322.13
ECG1188	5327.49	5326.77	5319.59	5324.16	5323.53	5322.41	5322.29	5322.08	5322.24	5321.94	5321.83	5320.10	5318.32
ECG1189	5158.27	NM	5156.72	5156.37	5156.65	5156.54	5156.42	5156.41	5156.15	5156.19	5156.32	5155.12	5155.83
ECG1190	5281.33	5280.45	5279.65	5278.66	5278.19	5277.43	5277.05	5276.43	5276.33	5275.50	5275.03	5273.75	5272.44
ECG1199A	5333.02	5328.03	5326.88	5325.43	5324.73	5323.53	5323.38	5323.12	5323.32	5323.05	5322.93	5324.23	5319.40
ECG1199B	5316.58	NM	5314.24	NM	5314.19	NM	5313.86	NM	5313.47	NM	5312.89	5312.20	5312.00
ECG1199C	5332.90	NM	5326.74	NM	5324.58	NM	5323.22	NM	5323.16	NM	5322.76	5321.08	5319.26
ECG1199D	5332.92	NM	5327.06	NM	5324.62	NM	5323.25	NM	5323.21	NM	5323.09	5321.03	5319.27
ECG1199E	5332.42	NM	5326.81	NM	5324.68	NM	5323.31	NM	5323.27	NM	5322.86	5321.19	5319.63
ECG1199F	5332.66	NM	5326.97	NM	5324.84	NM	5323.47	NM	5323.43	NM	5323.01	5321.34	5319.50
ECG1199G	5332.64	NM	5326.48	NM	5324.32	NM	5323.30	NM	5323.13	NM	5322.64	5321.09	5319.27
ECG293	5261.76	5259.57	5258.21	5257.63	5256.85	5256.86	5257.08	5258.48	5258.05	5257.60	5257.17	5255.93	5255.19
ECG294	5284.46	5278.13	5276.6	5275.18	5275.64	5275.04	5278.77	5283.70	5281.09	5279.17	5277.42	5276.94	5275.46
ECG295B	5271.66	5266.79	5265.57	5264.69	5265.09	5266.13	5269.32	5278.19	5270.99	5268.62	5266.58	5264.88	5266.22
ECG296	5295.36	5292.44	BLOCKED	BLOCKED	BLOCKED	BLOCKED	BLOCKED	BLOCKED	BLOCKED	BLOCKED	5290.35	NM	BLOCKED
ECG297	5306.85	5302.47	5301.53	5300.62	5300.35	5301.02	5303.01	5304.42	5305.18	5304.55	5303.01	5301.29	5302.14
ECG299	5331.09	5321.82	5319.88	5317.58	5316.43	5315.42	5316.94	5317.84	5318.95	5317.65	5318.05	5314.75	5312.72
ECG900	5331.70	5322.61	5320.61	5318.38	5317.1	5316.07	5317.44	5318.47	5319.61	5318.33	5318.71	5315.42	5313.29
ECG901	5331.29	5322.43	5320.39	5318.1	5316.91	5315.88	5317.27	5318.28	5319.44	5319.54	5318.55	5315.24	5313.12



Well	Sept 1996	April 2003	Sept 2003	April 2004	Sept 2004	April 2005	Sept 2005	April 2006	Sept 2006	April 2007	Sept 2007	Sept 2008	Sept 2009
ECG902	5354.50	BLOCKED	BLOCKED	BLOCKED	5339.71	5337.67	5337.90	5338.49	5339.56	5338.76	5339.63	5336.65	5334.13
ECG903	5502.29	5472.96	5470.06	5466.37	5465.51	5463.66	5469.85	5468.89	5472.98	5470.92	5467.76	5461.84	5458.70
ECG904	5368.07	5348.2	5346.9	5349.54	5347.4	5356.20	BLOCKED	BLOCKED	BLOCKED	BLOCKED	5348.60	NM	BLOCKED
ECG905	5387.85	5374.7	5367.76	5368.35	5368.9	5376.32	5378.70	5378.43	5379.61	5375.83	5373.30	5368.28	5367.99
ECG906	5330.62	5328.82	5327.59	5325.94	5325.35	5324.28	5324.46	5324.42	5324.79	5324.40	5324.07	5321.87	5319.90
ECG907	5331.98	5328.81	5327.6	5325.97	5325.16	5323.79	5323.80	5323.79	5324.25	5323.80	5323.56	5321.28	5319.08
ECG908	5578.84	5576.98	5574.58	5577.96	NM	5579.57	5580.73	5580.81	5581.50	5579.79	5580.26	5578.98	5579.49
ECG909	5487.95	5473.78	5473.04	5475.24	5476.53	5484.97	5485.17	5485.23	5485.28	5479.74	5476.35	5473.25	5476.54
ECG915	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	BLOCKED	NM	NM
ECG916	5563.59	5564.17	5562.08	5563.58	LID DAMAGE	5562.16	5563.36	5567.24	5570.42	5566.35	5567.77	5568.23	5568.66
ECG917	5348.03	5346.82	5345.29	5342.9	5341.85	5340.46	5340.06	5340.05	5340.36	5340.06	5339.90	5337.08	5334.60
ECG922	5331.80	5328.94	5328.08	5326.12	5325.36	5324.00	5324.08	5323.93	5324.37	5323.87	5323.64	5321.45	5319.30
ECG923	5424.97	5413.84	5411.25	5408.05	5408.2	5408.15	5411.58	5410.70	5413.54	5411.63	5409.67	5405.10	5404.48
ECG924	5557.24	5555.9	5555.82	5557.69	5556.77	5557.74	5557.06	5557.88	5556.87	5557.05	5556.37	5556.35	5556.79
ECG925	5521.01	5520.45	5517.19	5521.7	5518.77	5523.50	5520.78	5524.38	5520.43	5521.36	5518.32	5517.75	5518.21
ECG926	5509.85	5509.5	5507.61	5512.58	5508.5	5514.28	5509.65	5514.90	5509.23	5511.81	5508.07	5507.89	5508.72
ECG928	5425.10	5413.17	5411.1	5407.85	5408.11	5408.08	5411.57	5410.71	5413.54	5411.56	5409.55	5405.00	5404.55
ECG931	5571.38	5569.16	5568.48	5573.06	5569.62	5573.35	5570.36	5572.66	5570.02	5569.54	5568.75	5568.51	5568.71
ECG932	5635.16	5630.45	5628.68	5630.36	NM	5629.20	5631.60	5631.92	5631.58	5631.00	5630.04	5628.79	5629.44
ECG933	5577.79	5572.99	5572.15	5573.51	5571.79	5573.47	5573.03	5574.07	5572.72	5573.52	5571.71	5571.22	5571.45
ECG934	5584.37	5577.88	5576.57	5578.89	5576.52	5578.77	5578.25	5579.57	5578.07	5579.07	5576.55	5576.05	5576.34
ECG935	5708.74	NM	5707.58	5708.85	5707.84	5709.31	5708.09	5709.65	5708.02	5708.31	5707.57	5707.46	5707.70
ECG936	5845.18	5840.33	BLOCKED	BLOCKED	5841.88	BLOCKED	BLOCKED	BLOCKED	BLOCKED	BLOCKED	BLOCKED	BLOCKED	BLOCKED
ECG937	5809.25	5802.93	5802	5802.1	5801.37	5802.07	5802.27	5804.42	5803.80	5803.58	5802.45	5801.12	5800.86
ECG938	5983.73	5984.42	5982.51	5983.42	5982.31	5984.25	5983.92	5985.53	5983.87	5983.84	5982.57	5982.22	5982.47
ECG939	5983.43	5984.31	5982.22	5983.29	NM	5984.20	NM	NM	NM	BLOCKED	BLOCKED	BLOCKED	BLOCKED
ECG940	6072.47	6081.07	6075.73	6080	6076.25	6087.84	6077.79	6088.91	6078.80	6079.52	6076.83	6077.59	6078.21
ECG952	5136.02	5142.54	5142.25	5142.08	5131.29	5130.98	5131.02	5131.31	5120.56	5130.18	5128.74	5125.61	5124.98
EPG1165A	4632.91	4602.68	4598.88	4599.21	4596.56	4597.25	4596.81	4594.98	4592.22	4590.72	4586.79	4589.84	4586.92
EPG1165B	4631.52	NM	4597.03	NM	4595.02	NM	4595.77	NM	4590.68	NM	4584.98	4585.85	4584.05
EPG1165C	4628.73	NM	4594.17	NM	4592.28	NM	4594.27	NM	4588.32	NM	4582.27	4585.08	4582.56
EPG1166	4574.70	4583.61	4561.65	4584.42	4563.35	4586.76	4566.13	4589.39	4568.65	4587.56	4564.24	4564.21	4566.66
EPG1689	4603.67	NM	NM	NM	NM	4602.27	4603.27	4604.80	4605.73	4606.71	4607.55	4607.55	4607.90
EPG2780A	Not Drilled Yet	NM	NM	NM	NM	NM	NM	NM	NM	DRY	4579.28	4580.15	4580.08
EPG2780B	Not Drilled Yet	NM	NM	NM	NM	NM	NM	NM	NM	4594.06	4590.50	4589.36	4590.63
EPG2781A	Not Drilled Yet	NM	NM	NM	NM	NM	NM	NM	NM	4594.64	4604.20	4601.97	4601.40
EPG2781B	Not Drilled Yet	NM	NM	NM	NM	NM	NM	NM	NM	NM	4601.93	4602.59	4602.18
HMG1122A	4737.86	4715.53	4710.95	4702.72	4696.63	4690.98	4691.06	4685.85	4684.51	4680.37	4679.72	4673.45	4663.87
HMG1122B	4736.94	NM	4709.26	NM	4694.88	NM	4689.33	NM	4682.71	NM	4678.25	4671.57	4662.36
HMG1122C	4761.21	NM	4750.62	NM	4743.39	NM	4739.59	NM	4735.83	NM	4732.52	4728.63	4723.49
HMG1123A	4736.48	4713.46	4708.5	4699.77	4692.73	4687.57	4687.93	4685.62	4681.09	4677.37	4677.13	4669.78	4660.42
HMG1123B	4736.48	NM	4707.85	NM	4692.78	NM	4686.99	NM	4680.17	NM	4676.24	4668.36	4659.72
HMG1123C	4736.32	NM	4707.08	NM	4692.09	NM	4685.33	NM	4678.59	NM	4674.73	4666.20	4658.54
HMG1126A	4753.35	4731.73	4723.74	4722.5	4716.91	4711.02	4709.31	4706.57	4702.78	4698.91	4696.67	DRY	DRY
HMG1126B	4752.18	NM	4727.17	NM	4716.31	4710.68	4709.08	4706.37	4702.48	4698.68	4696.49	4691.60	4683.59
HMG1126C	4748.44	NM	4722.12	NM	4709.22	NM	4703.73	NM	4696.82	NM	4691.87	4685.91	4676.51
HMG1134A	4641.35	4612.23	4610.35	4607.47	4606.45	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
HMG1134B	4636.26	NM	4602.09	NM	4599.75	4599.44	4599.09	4597.26	4594.99	4593.19	4589.95	4585.98	4582.94
HMG1134C	4632.13	NM	4598.04	NM	4596.46	NM	4596.45	NM	4592.16	NM	4587.03	4583.53	4581.30
HMG1163A	4591.75	4575.29	NM	4575.27	4587.94	4574.69	4585.01	4574.99	4584.30	4575.34	4585.02	4586.44	4586.75
HMG1163B	4592.10	NM	NM	NM	4588.36	NM	4585.40	NM	4585.35	NM	4585.41	4586.36	4586.31
HMG1163C	4496.49	NM	NM	NM	4491.28	NM	4489.20	NM	4488.85	NM	4489.68	4489.86	4490.00



Well	Sept 1996	April 2003	Sept 2003	April 2004	Sept 2004	April 2005	Sept 2005	April 2006	Sept 2006	April 2007	Sept 2007	Sept 2008	Sept 2009
HMG1163Z	4590.48	NM	NM	NM	4586.92	NM	NM	NM	4584.32	NM	4583.91	NM	NM
HMG1164A	NM	NM	ABANDONED	ABANDONED	ABANDONED	ABANDONED	ABANDONED	ABANDONED	ABANDONED	ABANDONED	ABANDONED	ABANDONED	ABANDONED
HMG1856	4787.21	NM	4773.78	NM	NM	4764.81	4760.07	4760.85	4755.01	4756.67	4751.41	4749.61	4747.81
K105	5118.05	5113.93	5113.19	5113.02	5115.75	5115.28	5115.28	5115.29	5115.05	5114.90	5114.71	5114.2*	5112.64
K106	4732.30	4703.73	4702.98	4695.32	4689.26	4681.89	4677.52	4673.91	4671.26	4669.70	4667.14	4664.19	DRY
K120	5148.13	5139.32	5138.91	5138.77	5146.52	NM	5146.59	5147.08	5151.00	5150.86	5151.54	5147.59	5149.00
K201	4639.79	4609.7	NM	NM	4605.63	4603.37	4603.93	4601.93	4601.31	NM	ABANDONED	ABANDONMENT	ABANDONED
K26	4981.80	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	NM	DRY	DRY	DRY
K70	5325.43	5324.15	5322.75	5321.15	BLOCKED	5319.32	5319.41	5322.72	5319.62	5319.20	5318.93	DRY	DRY
K72	5261.26	BLOCKED	5259.69	BLOCKED	BLOCKED	BLOCKED	BLOCKED	BLOCKED	BLOCKED	BLOCKED	BLOCKED	DRY	NM
K84	5175.89	5174.81	5174.29	NM	5172.67	5174.02	5173.49	5175.59	5175.35	5175.26	5174.23	NM	5173.12
LRG910	5244.87	5242.07	5241.25	5241.36	5240.27	5240.72	5240.73	5243.24	5242.65	5242.76	5241.65	5240.92	5240.91
LRG911	5204.38	5201.64	5201.2	5201.3	5201.12	5201.09	5201.50	5201.52	5201.44	5201.77	5202.04	5202.30	5202.61
LRG912	5223.61	5222.68	5222.23	5221.54	5221.48	5221.79	5222.29	5222.96	5223.34	5223.12	5222.39	5221.27	5222.27
LRG914	5258.69	5256.47	5254.8	5253.56	5252.78	NM	5252.81	5253.88	5253.95	5253.64	5252.88	5251.55	BLOCKED
LTG1127A	5181.04	5172.72	5171.63	5170.32	5169.5	5168.69	5169.27	5171.21	5171.73	5171.23	5170.20	5167.28	5165.03
LTG1127B	5186.91	NM	5178.32	NM	5176.28	NM	5175.86	NM	5177.80	NM	5176.43	5173.36	5172.41
LTG1127C	5185.53	NM	5182.29	NM	5180.22	NM	5179.55	NM	5178.45	NM	5176.81	5174.96	5170.70
LTG1129A	5030.52	5029.21	5031.65	5031.71	5025.95	5025.60	5026.68	5027.15	5021.54	5020.39	5014.64	5005.61	5002.91
LTG1129B	5015.45	NM	5043.68	NM	5013	NM	5033.87	NM	5016.65	NM	4986.35	4992.40	4980.67
LTG1129C	5018.61	NM	5047.18	NM	5010.72	NM	5036.99	NM	5019.44	NM	4980.94	4993.38	4974.80
LTG1138A	4740.39	4716.82	4696.71	4685.77	DRY	DRY	4690.84	NM	DRY	NM	DRY	DRY	DRY
LTG1138B	4740.84	NM	4688.23	NM	4669.13	4664.14	4690.84	4689.03	4672.39	4668.74	4680.55	4669.47	4640.09
LTG1138C	4740.87	NM	4693.63	NM	4675.67	NM	4691.13	NM	4675.78	NM	4680.68	4670.03	4645.90
LTG1138D	4741.26	NM	4695.82	NM	4678.01	NM	4691.85	NM	4677.21	NM	4681.54	4671.00	4648.09
LTG1138E	4741.27	NM	4696.6	NM	4678.86	NM	4689.82	NM	4677.54	NM	4681.50	4670.95	4648.81
LTG1138F	4739.07	NM	4704	NM	4688.01	NM	4687.75	NM	4678.26	NM	4677.41	4666.88	4655.50
LTG1139	5003.60	5039.22	5044.55	NM	5013.53	5026.61	5032.41	5025.64	5016.03	4970.62	5007.05	5009.72	5002.31
LTG1140A	4998.66	5040.63	5044.17	5034.85	5014.97	5029.55	5033.85	5031.00	5015.32	5017.41	4988.55	4991.27	4981.94
LTG1140B	4991.52	NM	5044.43	NM	5015.37	NM	5034.18	NM	5016.25	NM	4988.52	4991.67	4981.15
LTG1140C	5018.43	NM	5046.64	NM	5016.54	NM	5035.98	NM	5018.69	NM	4985.82	4991.32	4976.32
LTG1140D	5042.00	NM	5075.6	NM	5048.01	NM	5066.54	NM	5051.14	NM	5028.56	5035.53	5024.55
LTG1141A	5033.57	5031.65	5034.23	5034.31	5028.2	NM	5029.12	5029.51	5023.50	5022.31	5016.19	DRY	DRY
LTG1141B	4976.41	NM	5043.8	NM	5015.54	NM	5033.69	NM	5016.40	NM	NM	4991.47	NM
LTG1141C	5017.77	NM	5046.19	NM	5016.24	NM	5035.54	NM	5018.31	NM	4985.99	4991.24	4985.15
LTG1147	4741.06	4716.52	NM	NM	NM	4621.30	4692.06	NM	NM	NM	NM	NM	4608.42
LTG1167A	4923.06	4903.6	4902.3	4900.64	4900.93	4898.83	4903.25	4903.35	4908.75	4904.70	4904.02	4896.70	4893.09
LTG1167B	4919.21	NM	4904.39	NM	4903.09	4901.85	4904.49	4905.89	4907.66	4903.62	4904.63	4899.67	4895.82
LTG1167C	4921.78	NM	4906.26	NM	4905.23	NM	4906.99	NM	4910.72	NM	4907.63	4902.49	4899.12
LTG1191	Not Drilled Yet	5307.78	5307.23	5308.65	5307.64	5310.35	5310.50	5310.45	5308.23	5308.56	5307.54	5306.98	5306.21
LTG929A	5213.49	5209.01	5206.81	5208.37	5211.77	5211.85	5214.36	5211.73	5212.97	5210.80	5209.84	5208.87	5209.53
LTG929B	5211.37	NM	5204.38	NM	5206.42	NM	5210.32	Dry	5209.59	DRY	5206.30	5205.18	5203.20
P190A	4632.97	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	NM	DRY	DRY	DRY
P190B	4631.72	4601.02	4597.05	4598.61	4594.67	4595.94	4594.97	4594.18	4590.35	4589.44	4584.53	4580.92	NM
P191A	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	NM	DRY	DRY	DRY
P191B	4622.68	4594.74	4586.49	4592.12	4585.05	4593.09	4587.73	4590.01	4580.56	4582.67	4573.65	4569.93	4567.91
P192A	4633.73	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	NM	DRY	DRY	DRY
P192B	4625.79	4599.62	4591.87	4596.28	4593.66	4597.41	4596.61	4596.55	4590.35	4591.78	NM	4585.10	4582.39
P193A	4636.74	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	NM	ABANDONED	ABANDONED	ABANDONED
P193B	4623.35	NM	4590.64	4595.72	4587.86	4591.91	4591.66	4591.45	4584.80	4586.69	4578.57	4575.02	4572.36
P194A	4631.47	4601.95	4598.05	4598.63	4595.98	4596.65	4596.43	4594.48	4591.85	4590.35	NM	4594.74	4591.82
P194B	4631.46	NM	4597.69	NM	4595.62	NM	4596.26	NM	4591.47	NM	NM	4594.75	4592.04



Well	Sept 1996	April 2003	Sept 2003	April 2004	Sept 2004	April 2005	Sept 2005	April 2006	Sept 2006	April 2007	Sept 2007	Sept 2008	Sept 2009
P197B	4620.56	4590.08	4580.86	4588.04	4582.52	4592.97	4585.01	Dry	4576.95	DRY	4569.53	4565.02	4564.12
P208A	4972.60	4936.36	4936.53	4928.76	4923.16	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
P208B	4979.41	NM	4932.97	NM	4916	4899.09	4887.36	4875.22	4867.49	4857.40	4855.14	4842.23	4867.90
P209B	4740.80	4706.1	4701.55	4693.58	4695.79	4688.09	4684.12	4680.54	4677.39	4676.89	4672.49	4666.29	4659.86
P211A	4887.50	4893.07	4892.06	4890.78	4878.16	4876.42	4875.89	4875.30	4875.72	4874.35	4873.70	4869.69	4865.54
P211B	4888.01	NM	4892.88	NM	4878.52	NM	4876.21	NM	4875.99	NM	4873.90	4869.88	4865.78
P212A	5001.22	5039.45	5043.09	5034.36	5027	5037.59	5043.53	5030.10	5026.82	5013.99	4992.63	4992.66	4988.76
P212B	5014.97	NM	5044.66	NM	5025.24	5028.99	5043.83	NM	5016.42	NM	4988.39	4990.44	4977.22
P214A	5422.97	5416.07	5419.36	5422.06	5420.88	5423.13	5422.30	5418.86	5421.14	5420.83	5419.96	5420.13	5419.93
P220	5517.09	5484.64	5481.65	5478.09	5476.72	5474.57	5477.43	5478.31	5481.06	5480.58	5478.80	5473.06	5468.85
P225	5472.70	5447.94	5444.62	5440.57	5439.12	5437.00	5439.40	5439.65	5441.53	5439.73	5439.11	5434.15	5430.83
P228	5761.83	5759.7	5758.67	5763.95	5760.91	5763.34	5761.98	5764.29	5761.76	5762.48	5759.35	5759.63	5760.68
P231	5311.38	5307.37	5306.68	5307.91	5306.9	5309.77	5309.89	5309.99	5308.71	5308.08	DRY	DRY	DRY
P239	5902.37	NM	NM	NM	NM	5906.52	5901.78	5904.63	5901.31	5900.09	5896.94	5897.30	5899.65
P240B	4591.05	NM	NM	4595.48	4592.58	4596.48	4593.73	4597.73	4594.30	4597.85	4594.17	NM	BLOCKED
P241A	4731.28	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	NM	DRY	DRY	DRY
P241B	4736.03	4708.7	4702.5	4693.95	4688.9	NM	4678.36	4675.84	4672.51	4671.95	4668.97	4660.20	4654.32
P241C	4735.56	4713.27	4710.18	4700.47	4690.73	4684.51	4682.32	4679.73	4676.05	4673.73	4671.55	4663.08	4656.57
P242	5185.46	NM	5181.76	5180.59	5181.43	5180.85	5183.07	5183.16	NM	5183.88	NM	5180.83	NM
P243	5337.88	5334.28	5333.47	5332.1	5334.88	5333.87	5333.66	5333.22	5332.99	5332.96	5332.99	5332.06	5330.83
P244A	5630.54	5627.92	5627.76	5629.64	5630.76	5631.68	5631.44	5630.91	5630.69	5629.64	5628.74	5628.88	5629.83
P244B	5617.29	NM	5623.53	NM	5628.77	NM	5629.57	NM	5625.89	NM	5623.80	5624.03	5624.99
P244C	5616.40	NM	5619.38	NM	5628.03	NM	5629.84	NM	5623.40	NM	5619.95	5620.18	5621.27
P245	5471.19	5439.59	5434.23	5439.67	5438.36	5440.46	5446.14	5450.96	5452.34	5447.86	5444.11	5437.89	5435.33
P247A	4436.84	4421.1	4425.43	4418.26	4428.19	4418.04	4425.39	4419.42	4423.55	4418.48	4423.12	4421.57	4421.42
P248A	5252.83	5255.36	5250.13	5250.06	5249.62	5250.21	5250.28	5252.86	5250.79	5250.21	5248.29	5248.99	5248.65
P248B	5254.75	NM	5251.06	NM	5251.52	NM	5252.09	NM	5252.72	NM	5250.23	5250.85	5250.51
P248C	5261.77	NM	5255.04	NM	5257.36	NM	5257.77	Dry	5258.63	DRY	5256.08	5256.42	5255.89
P249A	4852.93	4828.14	DRY	DRY	DRY	DRY	DRY	DRY	DRY	BLOCKED	DRY	DRY	DRY
P249B	4852.96	NM	4827.81	NM	NM	NM	NM	NM	NM	NM	BLOCKED	BLOCKED	BLOCKED
P252A	4428.06	NM	NM	4415.6	4421.31	4416.06	4418.42	4417.22	4419.45	4416.76	4419.04	4419.37	4417.87
P252B	4425.69	NM	NM	NM	4416.5	4413.23	4415.58	NM	4416.64	NM	4416.24	4416.01	4415.16
P252C	4428.94	NM	NM	NM	4419.26	4415.97	4418.24	NM	4419.36	NM	4419.00	4418.67	4417.98
P253A	4424.82	4412.96	4417.47	4410.79	4417.01	4410.55	4414.93	4411.47	4415.54	4411.02	4415.52	4414.47	4413.40
P253B	4415.09	NM	4415.15	NM	4414.83	NM	4413.06	NM	4413.43	NM	4413.02	4412.21	4411.35
P254A	4586.20	4576.9	4585.37	4576.52	4583.98	4575.95	4583.95	ABANDONED	ABANDONED	NM	NM	NM	NM
P254B	4590.73	NM	4590.45	NM	4590.13	NM	4590.07	ABANDONED	ABANDONED	NM	NM	NM	NM
P255A	4656.55	4627.71	4646.62	4626.26	4649.17	4625.40	4646.19	4626.00	4656.76	4630.47	4650.25	4651.81	4651.47
P255B	4654.97	NM	4642.99	NM	4644.86	NM	4642.39	NM	4651.34	NM	4646.21	4647.25	4642.60
P256	4602.82	4583.18	4597.67	4585	4596.64	4591.43	4594.92	4583.13	4595.80	4583.85	4595.21	4597.48	BLOCKED
P257	4647.26	4620.29	4623.5	4617.7	4621.61	4616.65	4622.28	4617.10	4624.54	4617.43	4626.95	4626.72	4630.00
P259	4423.48	4412.87	4413.8	4410.63	4416.26	4410.58	4414.42	4411.50	4415.31	4411.01	4415.24	4414.44	4413.73
P260	4598.96	4596.64	4599.3	4597.15	4600.07	4597.93	4601.19	4598.67	4602.08	4598.77	4601.35	4601.15	4602.44
P261	4608.15	4609.33	NM	NM	4610.5	4611.30	4612.45	4614.73	4613.40	4616.56	4613.09	4613.02	4614.22
P262	4448.58	DRY	4439.5	DRY	4439.25	DRY	DRY	DRY	DRY	NM	DRY	DRY	DRY
P263	4603.94	4594.58	4594.78	4589.41	4597.12	4588.86	4595.95	4589.38	4597.50	4590.15	4598.06	4598.56	4597.38
P264	4819.57	4802.76	4800.37	4797.23	4794.86	4791.11	4788.54	NM	4783.54	4781.00	4778.87	4773.43	4767.58
P267B	4788.73	4782.74	4779.27	4784.05	4777.3	4775.62	4769.00	4770.81	4763.84	NM	4756.88	4754.97	4753.61
P268	4907.53	4901.57	4900.08	4898.74	4898.22	4896.29	4895.02	NM	4893.46	4893.03	4897.05	DRY	DRY
P269	DRY	5038.38	5041.8	5037.08	DRY	DRY	5033.15	5032.92	DRY	DRY	DRY	DRY	DRY
P270	5388.54	5391.81	5381.31	5386.64	5380.7	5390.53	5385.23	5392.33	5383.63	5387.76	5379.32	5382.66	5385.00
P271	5440.34	5438.86	5438.05	5440.48	5438.66	5440.86	5440.02	5440.20	5439.61	5439.08	5438.45	5438.27	5438.49



Well	Sept 1996	April 2003	Sept 2003	April 2004	Sept 2004	April 2005	Sept 2005	April 2006	Sept 2006	April 2007	Sept 2007	Sept 2008	Sept 2009
P272	5540.28	5526.25	5524.86	5526.56	5526.66	5535.15	5534.89	5538.67	5534.66	5531.21	5528.83	5526.87	5527.44
P273	4918.79	NM	NM	4906.14	4904.35	4900.15	4897.87	4893.61	4901.13	4887.81	4885.79	4881.58	4880.44
P274	5083.38	5082.36	5082.18	5081.99	5079.51	5081.31	5081.18	5081.15	5080.95	5080.72	5080.65	5079.93	5079.66
P277	4735.26	4708.83	4703.81	4696.78	4691.26	4685.28	4684.75	4677.87	4675.34	4674.51	4673.06	4664.92	4659.48
P279	4980.07	4939.48	4938.39	4930.37	4919.92	4902.57	4890.47	DRY	DRY	NM	DRY	DRY	DRY
RVG1164Z	NM	ABANDONED	ABANDONED	ABANDONED	ABANDONED	ABANDONED	ABANDONED	ABANDONED	ABANDONED	ABANDONED	ABANDONED	ABANDONED	ABANDONED
SRG945	5153.20	5151.48	NM	5150.96	NM	5149.46	5149.38	5150.41	5149.80	5149.63	5147.90	5145.18	5144.99
SRG946	5173.40	5168.76	NM	5165.58	NM	5165.61	5168.88	NM	NM	NM	NM	5166.23	5168.48
W131A	4665.02	4634.22	4630.85	4630.24	4625.66	ABANDONED	ABANDONED	ABANDONED	ABANDONED	NM	ABANDONED	ABANDONED	ABANDONED
W32	NM	NM	NM	NM	NM	5108.86	NM	NM	NM	NM	NM	5077.53	5072.51
W403	4801.32	4805.78	4806.26	4807.61	4795.88	4798.22	4785.71	4794.75	4781.42	4786.18	4775.68	4775.27	4776.77
WJG1154A	4612.49	4592.78	4584.4	4590.15	4577.53	4589.40	4585.00	4587.43	4575.07	4581.68	4568.38	4564.16	4562.72
WJG1154B	4612.58	NM	4580.21	NM	4577.56	NM	4584.30	NM	4575.15	NM	4568.45	4564.16	4562.69
WJG1154C	4613.23	NM	4584.4	NM	4577.12	NM	4584.11	NM	4575.31	NM	4568.86	4564.25	4562.83
WJG1169A	4733.58	4707.61	4704.4	4696.63	4690.9	4683.45	4678.41	4674.98	4672.16	4670.15	4667.74	4662.13	4654.47
WJG1169B	4733.66	NM	4704.5	NM	4691.03	NM	4678.74	NM	4672.30	NM	4667.72	4662.24	4654.62
WJG1169C	4733.72	NM	4704.56	NM	4691.1	NM	4678.78	NM	4672.39	NM	4667.84	4662.23	4654.71
WJG1170A	4617.61	4591.93	4580.4	4589.35	4578.68	4589.91	4584.34	4587.26	4575.28	4580.45	4568.33	4566.03	DRY
WJG1170B	4617.64	NM	4580.25	NM	4578.38	NM	4584.07	NM	4575.09	NM	4568.24	4563.92	4562.50
WJG1170C	4617.77	NM	4580.11	NM	4578.28	NM	4583.65	NM	4574.89	NM	4567.94	4563.70	4562.21
WJG1171A	4607.15	4595.93	4576.65	4592.79	4573.28	4588.92	4588.90	4590.50	4573.56	4586.02	4566.27	4562.75	4559.76
WJG1171B	4604.75	NM	4576.36	NM	4572.47	NM	4588.83	NM	4571.21	NM	4565.65	4562.63	4558.38
WJG1171C	4604.23	NM	4576.4	NM	4572.42	NM	4589.04	BLOCKED	4570.93	BLOCKED	4565.68	4562.73	4558.15
WJG1980	4609.64	4592.75	4578.34	4592.94	4570.89	4589.49	4579.83	4586.60	NM	NM	NM	NM	NM
WJG1981	4616.26	BLOCKED	BLOCKED	BLOCKED	BLOCKED	BLOCKED	BLOCKED	BLOCKED	BLOCKED	NM	BLOCKED	NM	NM
WJG2453	4591.02	4595.23	NM	4592.38	NM	4586.73	NM	4590.45	NM	NM	NM	NM	NM

NM = Not Measured

All data density corrected.

\*=corrected from 2008 Data

## Appendix C

### Tailings Monitoring Data



**Table C-1 Daily Tailings Monitoring Data 2009**

<b>Date</b>	<b>Tailings pH at North Splitter Box (su)</b>	<b>Acid Water Pumping through WDPS (gpm)</b>	<b>Concentrator Throughput (TPH)</b>
01/01/09	7.7	0	5111
01/02/09	7.4	0	4480
01/03/09	7.8	0	4823
01/04/09	7.7	0	5771
01/05/09	7.7	0	5698
01/06/09	7.2	0	6079
01/07/09	7.7	0	4873
01/08/09	7.8	0	5437
01/09/09	7.8	0	6630
01/10/09	7.8	0	6093
01/11/09	7.8	0	5816
01/12/09	7.8	0	6965
01/13/09	7.5	0	7584
01/14/09	7.9	0	5787
01/15/09	7.9	0	5245
01/16/09	7.9	0	6930
01/17/09	7.2	0	7308
01/18/09	7.6	0	7323
01/19/09	7.6	0	4987
01/20/09	7.7	0	7206
01/21/09	7.7	0	5918
01/22/09	7.7	0	6562
01/23/09	7.6	0	6841
01/24/09	7.6	0	5427
01/25/09	7.6	0	2782
01/26/09	7.6	0	4425
01/27/09	7.4	0	4738
01/28/09	7.5	0	4241
01/29/09	7.6	0	4286
01/30/09	7.4	0	8
01/31/09	7.6	0	5846
02/01/09	7.5	0	5514
02/02/09	7.5	0	5508
02/03/09	7.5	0	5872
02/04/09	7.5	0	4530
02/05/09	7.4	0	5937
02/06/09	7.6	1965	6336
02/07/09	7.6	3358	8629
02/08/09	7.6	3291	8547
02/09/09	7.6	3377	6776
02/10/09	7.6	3313	6761
02/11/09	7.6	3341	5274
02/12/09	7.6	3287	5292
02/13/09	7.6	2699	7012
02/14/09	7.5	3313	6484
02/15/09	7.5	3283	6888

Date	Tailings pH at North Splitter Box (su)	Acid Water Pumping through WDPS (gpm)	Concentrator Throughput (TPH)
02/16/09	7.5	3306	6950
02/17/09	7.6	3356	6083
02/18/09	7.6	3379	5951
02/19/09	7.6	3325	6457
02/20/09	7.5	3301	6602
02/21/09	7.5	3298	7078
02/22/09	7.5	3325	8508
02/23/09	7.5	1513	6641
02/24/09	7.0	2251	7582
02/25/09	7.1	3688	5798
02/26/09	6.9	1249	7225
02/27/09	6.9	2849	6685
02/28/09	6.9	4018	6556
03/01/09	6.9	3769	6058
03/02/09	6.9	3999	6543
03/03/09	8.2	4069	6056
03/04/09	8.0	4008	5587
03/05/09	8.5	4090	6662
03/06/09	8.2	4232	5953
03/07/09	8.4	4317	7199
03/08/09	8.1	4348	7207
03/09/09	8.2	4266	6761
03/10/09	Bad Data	4206	7497
03/11/09	8.0	4143	6826
03/12/09	7.9	4127	7542
03/13/09	8.0	4143	6771
03/14/09	7.9	4192	7637
03/15/09	8.1	4197	7795
03/16/09	7.8	4045	7591
03/17/09	7.7	4225	7612
03/18/09	7.7	4355	7367
03/19/09	7.9	3217	7528
03/20/09	7.7	4040	7989
03/21/09	7.6	3853	7592
03/22/09	7.7	4098	8219
03/23/09	7.6	4272	7877
03/24/09	7.5	3179	5943
03/25/09	8.1	2240	5468
03/26/09	7.9	2254	6027
03/27/09	8.3	2352	7654
03/28/09	8.3	2214	6267
03/29/09	8.0	2928	7902
03/30/09	8.2	2861	8398
03/31/09	8.0	3198	6197
04/01/09	8.0	3367	8043
04/02/09	8.0	3409	5229
04/03/09	8.2	3922	8553
04/04/09	8.2	3840	7883



<b>Date</b>	<b>Tailings pH at North Splitter Box (su)</b>	<b>Acid Water Pumping through WDPS (gpm)</b>	<b>Concentrator Throughput (TPH)</b>
04/05/09	8.3	3741	8169
04/06/09	8.1	3287	8780
04/07/09	8.4	3184	6980
04/08/09	8.0	3191	6705
04/09/09	7.9	3345	5274
04/10/09	8.1	3366	8696
04/11/09	8.3	3177	6944
04/12/09	8.3	3068	6511
04/13/09	8.6	3255	6656
04/14/09	8.2	3252	5301
04/15/09	8.1	3759	6898
04/16/09	7.9	3629	6168
04/17/09	8.3	3345	5386
04/18/09	8.4	3522	6297
04/19/09	8.3	3153	7069
04/20/09	8.3	3151	7112
04/21/09	8.4	3756	7853
04/22/09	7.8	3991	4043
04/23/09	7.9	3964	7781
04/24/09	8.0	3922	4623
04/25/09	8.1	3928	8137
04/26/09	8.2	3767	8325
04/27/09	8.2	3461	8772
04/28/09	8.3	3483	6391
04/29/09	8.3	3484	6528
04/30/09	8.2	3742	7322
05/01/09	8.1	2952	5809
05/02/09	8.3	2618	6371
05/03/09	8.2	2578	7051
05/04/09	8.0	2589	5983
05/05/09	8.1	2885	7429
05/06/09	8.0	3387	7606
05/07/09	7.9	3387	7620
05/08/09	7.9	3295	7369
05/09/09	7.8	3272	7821
05/10/09	8.0	3260	8147
05/11/09	7.9	3005	5976
05/12/09	8.1	3212	6098
05/13/09	8.1	3059	6243
05/14/09	8.0	3304	7593
05/15/09	8.0	3308	7827
05/16/09	7.9	3312	8119
05/17/09	7.7	3258	7360
05/18/09	7.9	3221	8090
05/19/09	7.2	3187	8389
05/20/09	Bad Data	3217	8118
05/21/09	8.0	3214	5383
05/22/09	7.9	3194	7556

<b>Date</b>	<b>Tailings pH at North Splitter Box (su)</b>	<b>Acid Water Pumping through WDPS (gpm)</b>	<b>Concentrator Throughput (TPH)</b>
05/23/09	7.9	3213	8453
05/24/09	7.6	3215	8722
05/25/09	7.8	3212	6624
05/26/09	7.7	1807	6357
05/27/09	7.7	1827	6324
05/28/09	7.6	1699	6336
05/29/09	7.7	3339	6332
05/30/09	7.7	3279	7740
05/31/09	7.7	3317	7305
06/01/09	8.0	3367	7586
06/02/09	7.8	3507	6439
06/03/09	7.8	3396	7300
06/04/09	7.8	3401	8393
06/05/09	7.4	3403	6698
06/06/09	7.9	3368	8353
06/07/09	7.9	3396	7802
06/08/09	7.5	3444	8110
06/09/09	7.3	3455	8189
06/10/09	7.2	3490	7640
06/11/09	7.3	3498	6557
06/12/09	7.1	3403	6267
06/13/09	7.5	3461	5465
06/14/09	7.3	2467	8037
06/15/09	7.2	0	18
06/16/09	9.0	0	5820
06/17/09	9.2	3404	5962
06/18/09	7.5	3862	4382
06/19/09	7.7	3709	7193
06/20/09	7.7	4052	7999
06/21/09	7.7	4099	8069
06/22/09	7.8	3967	6993
06/23/09	7.7	3725	7120
06/24/09	8.0	3433	8142
06/25/09	7.7	3353	6520
06/26/09	7.9	3352	6524
06/27/09	7.9	3464	7787
06/28/09	8.0	3370	8243
06/29/09	7.9	3459	7577
06/30/09	7.9	2637	8134
07/01/09	7.9	3346	8285
07/02/09	7.8	3796	8346
07/03/09	8.0	3488	8071
07/04/09	7.7	3294	6190
07/05/09	7.8	3281	8496
07/06/09	7.7	3283	8458
07/07/09	7.9	3426	8026
07/08/09	7.7	3681	7524
07/09/09	7.6	2443	6726



Date	Tailings pH at North Splitter Box (su)	Acid Water Pumping through WDPS (gpm)	Concentrator Throughput (TPH)
07/10/09	7.9	2184	6722
07/11/09	8.0	3479	7567
07/12/09	7.9	3501	8357
07/13/09	7.8	3309	7953
07/14/09	7.7	3327	6730
07/15/09	7.7	3011	6736
07/16/09	7.7	3108	6524
07/17/09	7.8	3066	7907
07/18/09	7.8	3054	8126
07/19/09	7.9	3077	6862
07/20/09	7.7	5936	7312
07/21/09	9.0	9000	6063
07/22/09	9.0	8888	8203
07/23/09	9.0	6002	7860
07/24/09	7.8	3820	8197
07/25/09	7.6	3895	8119
07/26/09	7.7	3878	8346
07/27/09	7.9	2290	7141
07/28/09	7.8	2112	8123
07/29/09	9.4	2354	4366
07/30/09	7.2	3622	3401
07/31/09	7.2	3841	4893
08/01/09	7.6	3979	7437
08/02/09	7.5	4037	7705
08/03/09	7.3	2677	7155
08/04/09	7.8	2782	6539
08/05/09	8.0	2724	7129
08/06/09	7.9	2628	8303
08/07/09	8.1	2713	7784
08/08/09	8.1	4173	8330
08/09/09	8.2	4093	6157
08/10/09	7.8	2437	4994
08/11/09	8.1	2679	7546
08/12/09	8.2	2720	7635
08/13/09	8.2	2912	7682
08/14/09	8.0	2620	7720
08/15/09	7.9	3933	8384
08/16/09	8.0	3981	6759
08/17/09	8.5	2877	8282
08/18/09	7.9	2649	5947
08/19/09	8.0	2722	5807
08/20/09	7.8	2428	6712
08/21/09	7.9	2515	7589
08/22/09	7.9	3880	7173
08/23/09	7.9	3860	5667
08/24/09	8.3	2396	7167
08/25/09	8.8	2211	7202
08/26/09	8.8	2529	7081

<b>Date</b>	<b>Tailings pH at North Splitter Box (su)</b>	<b>Acid Water Pumping through WDPS (gpm)</b>	<b>Concentrator Throughput (TPH)</b>
08/27/09	8.3	2740	8198
08/28/09	8.3	2563	8125
08/29/09	8.1	3938	8299
08/30/09	8.2	3947	6918
08/31/09	8.0	1285	7975
09/01/09	9.5	1348	7855
09/02/09	8.2	971	5470
09/03/09	8.0	61	11
09/04/09	9.7	2896	6019
09/05/09	8.0	4191	7795
09/06/09	8.0	4183	7949
09/07/09	7.9	4038	8007
09/08/09	7.7	2530	8069
09/09/09	7.9	2563	8456
09/10/09	7.8	2344	8312
09/11/09	8.1	2692	8433
09/12/09	8.1	3859	8282
09/13/09	8.3	4104	8321
09/14/09	8.0	2181	5729
09/15/09	8.3	2356	5791
09/16/09	8.2	2395	5506
09/17/09	8.3	2362	5495
09/18/09	8.9	3992	6767
09/19/09	8.6	3742	8229
09/20/09	8.4	3453	8279
09/21/09	8.8	2011	8224
09/22/09	8.2	2237	7912
09/23/09	8.3	3648	8220
09/24/09	8.1	3206	7798
09/25/09	8.3	3467	8147
09/26/09	8.4	3278	8221
09/27/09	8.5	3325	8318
09/28/09	8.2	3255	8208
09/29/09	8.2	3254	5254
09/30/09	8.3	3325	7199
10/01/09	8.0	3252	8319
10/02/09	8.0	3246	8445
10/03/09	8.3	3314	8044
10/04/09	8.2	3457	8247
10/05/09	9.6	3509	7808
10/06/09	8.6	3544	6019
10/07/09	8.5	3636	6488
10/08/09	8.4	3678	7785
10/09/09	8.5	3674	8029
10/10/09	8.4	3638	8154
10/11/09	8.5	3499	8388
10/12/09	8.5	3350	8096
10/13/09	8.6	3267	7843



<b>Date</b>	<b>Tailings pH at North Splitter Box (su)</b>	<b>Acid Water Pumping through WDPS (gpm)</b>	<b>Concentrator Throughput (TPH)</b>
10/14/09	8.6	3123	6912
10/15/09	8.4	3306	7901
10/16/09	8.5	3241	7097
10/17/09	8.6	3215	5459
10/18/09	8.5	3289	8142
10/19/09	9.1	2064	8251
10/20/09	8.5	2303	8152
10/21/09	8.7	2245	8371
10/22/09	9.2	3796	7795
10/23/09	8.8	3283	8178
10/24/09	8.7	3295	7905
10/25/09	8.6	3258	8389
10/26/09	8.7	3592	5818
10/27/09	8.4	2349	8082
10/28/09	9.3	886	8167
10/29/09	9.3	1687	6680
10/30/09	8.3	3279	8258
10/31/09	7.4	3036	7569
11/01/09	8.1	2868	8253
11/02/09	8.1	1915	8266
11/03/09	7.9	2002	8380
11/04/09	7.6	1825	8002
11/05/09	7.4	1985	8349
11/06/09	7.4	3385	8193
11/07/09	7.5	1552	8059
11/08/09	9.1	68	7201
11/09/09	9.2	160	6072
11/10/09	9.3	69	5721
11/11/09	9.1	67	5175
11/12/09	9.2	68	5392
11/13/09	9.3	1872	5275
11/14/09	7.9	3414	6740
11/15/09	7.7	3624	6094
11/16/09	7.8	3776	7536
11/17/09	7.5	2512	7483
11/18/09	7.5	2440	7404
11/19/09	7.3	3932	7292
11/20/09	7.8	0	4915
11/21/09	7.7	0	6704
11/22/09	7.9	0	5878
11/23/09	7.8	3948	5604
11/24/09	7.9	3939	7618
11/25/09	7.8	3944	7958
11/26/09	7.7	3943	6959
11/27/09	7.9	3933	7796
11/28/09	7.5	3927	7939
11/29/09	7.8	3925	8320
11/30/09	7.7	1335	5636

<b>Date</b>	<b>Tailings pH at North Splitter Box (su)</b>	<b>Acid Water Pumping through WDPS (gpm)</b>	<b>Concentrator Throughput (TPH)</b>
12/01/09	10.0	78	5650
12/02/09	10.0	81	5535
12/03/09	10.0	86	5488
12/04/09	9.9	86	6862
12/05/09	9.8	82	7608
12/06/09	10.0	86	7739
12/07/09	10.1	85	6788
12/08/09	9.8	83	7963
12/09/09	10.0	84	7389
12/10/09	9.9	83	6945
12/11/09	9.9	85	7141
12/12/09	10.0	448	6341
12/13/09	9.2	2661	6882
12/14/09	8.2	3315	5621
12/15/09	8.1	3592	5306
12/16/09	8.2	3524	6036
12/17/09	8.3	718	4818
12/18/09	7.4	243	8
12/19/09	10.2	2245	6217
12/20/09	7.9	3718	6554
12/21/09	8.0	3621	7197
12/22/09	7.3	170	45
12/23/09	7.9	79	8
12/24/09	8.0	453	8
12/25/09	4.9	1816	3589
12/26/09	7.7	2394	3396
12/27/09	9.6	3800	5168
12/28/09	7.9	3807	5502
12/29/09	7.7	3799	4022
12/30/09	7.8	3646	6058
12/31/09	7.7	3719	6597



**Table C-2 Monthly Tailings Aqueous Chemistry Monitoring Data 2009**

Site	Date	pH SU	TDS (mg/L)	Alk (mg/L as CaCO3)	Ca-T (mg/L)	Mg-T (mg/L)	Cl (mg/L)	SO4 (mg/L)	Al-D (mg/L)	Cd-D (mg/L)	Cu-D (mg/L)	Fe-D (mg/L)	Mn-D (mg/L)	Zn-D (mg/L)
BCP2739	1/2/2009	8.19	NM	NM	NM	NM	NM	NM	NM	<1e-005	<0.015	NM	NM	0.046
BCP2739	1/9/2009	8.33	NM	NM	NM	NM	NM	NM	NM	<1e-005	<0.015	NM	NM	0.033
BCP2739	1/16/2009	7.79	NM	NM	NM	NM	NM	NM	<0.1	<1e-005	<0.015	<0.02	0.98	<0.02
BCP2739	1/23/2009	7.81	7760	44	894	231	2350	2930	<0.1	0.005	0.037	<0.02	1.16	0.029
BCP2739	1/30/2009	8.91	NM	NM	NM	NM	NM	NM	NM	<1e-005	0.04	NM	NM	0.021
BCP2739	2/6/2009	7.75	NM	NM	NM	NM	NM	NM	NM	<1e-005	0.085	NM	NM	0.032
BCP2739	2/13/2009	NM	NM	NM	NM	NM	NM	NM	NM	<1e-005	0.055	NM	NM	0.024
BCP2739	2/20/2009	6.75	7330	53	834	205	2230	2970	0.13	0.006	0.032	<0.02	1.11	0.021
BCP2739	2/27/2009	7.87	NM	NM	NM	NM	NM	NM	NM	<1e-005	<0.015	NM	NM	0.032
BCP2739	3/6/2009	8.31	NM	NM	NM	NM	NM	NM	NM	<1e-005	<0.015	NM	NM	<0.02
BCP2739	3/13/2009	8.5	NM	NM	NM	NM	NM	NM	NM	<1e-005	0.04	NM	NM	<0.02
BCP2739	3/20/2009	7.98	7840	50	910	156	2260	2710	0.038	0.006	0.038	0.035	0.8	0.015
BCP2739	3/27/2009	7.9	NM	NM	NM	NM	NM	NM	NM	<1e-005	0.022	NM	NM	<0.02
BCP2739	4/3/2009	8.36	NM	NM	NM	NM	NM	NM	NM	<1e-005	<0.015	NM	NM	0.021
BCP2739	4/13/2009	8.1	NM	NM	NM	NM	NM	NM	NM	<1e-005	<0.015	NM	NM	<0.02
BCP2739	4/16/2009	8.27	NM	NM	NM	NM	NM	NM	NM	<1e-005	<0.015	NM	NM	<0.02
BCP2739	4/28/2009	6.86	7700	47	958	171	2240	2750	0.14	0.006	0.032	<0.02	0.54	0.021
BCP2739	5/13/2009	8.39	NM	NM	NM	NM	NM	NM	NM	<1e-005	0.025	NM	NMN	0.033
BCP2739	5/22/2009	5.69	7620	57	926	169	2240	2760	0.034	0.005	0.075	<0.02	0.61	0.03
BCP2739	5/29/2009	7.86	NM	NM	NM	NM	NM	NM	NM	<1e-005	0.03	NM	NM	0.023
BCP2739	6/4/2009	6.49	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
BCP2739	6/10/2009	6.47	NM	NM	NM	NM	NM	NM	NM	<1e-005	<0.015	NM	NM	0.028
BCP2739	6/18/2009	8.59	NM	NM	NM	NM	NM	NM	NM	<1e-005	<0.015	NM	NM	<0.02
BCP2739	6/24/2009	5.78	7850	55	927	141	2220	2710	<0.1	0.003	<0.015	<0.02	0.25	<0.01
BCP2739	7/1/2009	8.12	NM	NM	NM	NM	NM	NM	NM	<1e-005	0.031	NM	NM	<0.02
BCP2739	8/4/2009	7.59	8040	44	1030	142	2670	2760	0.032	0.006	0.023	<0.02	0.29	0.03
BCP2739	8/25/2009	8.62	7850	35	1040	114	2520	2600	<0.1	0.005	<0.015	<0.02	0.23	0.017
BCP2739	9/22/2009	7.77	7960	38	1020	151	2550	NM	NM	0.007	NM	NM	NM	0.029
BCP2739	10/21/2009	8.71	8080	47	1020	125	2690	2600	<0.1	0.006	0.024	0.024	0.28	0.02
BCP2739	11/24/2009	8.64	7160	35	966	88	2370	NM	<0.1	0.003	<0.015	<0.02	<1e-005	<0.01
BCP2739	12/10/2009	8.48	7280	53	890	170	2290	2460	<0.1	0.009	0.063	<0.02	0.36	0.053
BCP2750	1/2/2009	9.64	NM	NM	NM	NM	NM	NM	NM	<1e-005	<0.015	NM	NM	<0.02
BCP2750	1/9/2009	9.47	NM	NM	NM	NM	NM	NM	NM	<1e-005	<0.015	NM	NM	<0.02
BCP2750	1/16/2009	9.42	NM	NM	NM	NM	NM	NM	NM	<1e-005	<0.015	NM	NM	<0.02
BCP2750	1/23/2009	9.71	7150	25	1060	124	2210	2960	<0.1	<1e-005	<0.015	<0.02	<1e-005	<0.02
BCP2750	1/30/2009	9.9	NM	NM	NM	NM	NM	NM	NM	<1e-005	<0.015	NM	NM	<0.02
BCP2750	2/6/2009	9.53	NM	NM	NM	NM	NM	NM	NM	<1e-005	<0.015	NM	NM	<0.02
BCP2750	2/13/2009	NM	NM	NM	NM	NM	NM	NM	NM	<1e-005	0.019	NM	NM	<0.02
BCP2750	2/20/2009	9.77	7200	24	1000	93	2160	2490	<0.1	<1e-005	<0.015	<0.02	<1e-005	<0.02



Site	Date	pH SU	TDS (mg/L)	Alk (mg/L as CaCO3)	Ca-T (mg/L)	Mg-T (mg/L)	Cl (mg/L)	SO4 (mg/L)	Al-D (mg/L)	Cd-D (mg/L)	Cu-D (mg/L)	Fe-D (mg/L)	Mn-D (mg/L)	Zn-D (mg/L)
BCP2750	2/27/2009	10.05	NM	NM	NM	NM	NM	NM	NM	<1e-005	<0.015	NM	NM	<0.02
BCP2750	3/6/2009	10.22	NM	NM	NM	NM	NM	NM	NM	<1e-005	<0.015	NM	NM	<0.02
BCP2750	3/13/2009	9.79	NM	NM	NM	NM	NM	NM	NM	<1e-005	<0.015	NM	NM	<0.02
BCP2750	3/20/2009	9.58	7260	14	1090	48	2130	2560	<0.1	<1e-005	<0.015	<0.02	<1e-005	<0.02
BCP2750	3/27/2009	9.82	NM	NM	NM	NM	NM	NM	NM	<1e-005	<0.015	NM	NM	<0.02
BCP2750	4/3/2009	9.76	NM	NM	NM	NM	NM	NM	NM	<1e-005	<0.015	NM	NM	<0.02
BCP2750	4/13/2009	9.57	NM	NM	NM	NM	NM	NM	NM	<1e-005	<0.015	NM	NM	<0.02
BCP2750	4/16/2009	9.73	NM	NM	NM	NM	NM	NM	NM	<1e-005	<0.015	NM	NM	<0.02
BCP2750	4/28/2009	7.86	7220	25	1050	73	2320	2640	<0.1	0.00072	<0.015	<0.02	0.00482	<0.02
BCP2750	5/13/2009	8.06	NM	NM	NM	NM	NM	NM	NM	<1e-005	<0.015	NM	NM	<0.02
BCP2750	5/22/2009	8.48	7290	22	1110	76	2220	2700	<0.1	0.024	<0.015	<0.02	<1e-005	<0.02
BCP2750	5/29/2009	9.21	NM	NM	NM	NM	NM	NM	NM	<1e-005	<0.015	NM	NM	<0.02
BCP2750	6/4/2009	8.51	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
BCP2750	6/10/2009	8.83	NM	NM	NM	NM	NM	NM	NM	<1e-005	<0.015	NM	NM	<0.02
BCP2750	6/18/2009	9.4	NM	NM	NM	NM	NM	NM	NM	<1e-005	<0.015	NM	NM	<0.02
BCP2750	6/24/2009	7.58	7400	21	1100	48	2240	2640	<0.1	<1e-005	<0.015	<0.02	<1e-005	<0.02
BCP2750	7/1/2009	9.35	NM	NM	NM	NM	NM	NM	NM	<1e-005	<0.015	NM	NM	<0.02
BCP2750	8/4/2009	NM	NM	23	1190	27	2450	2550	<0.1	<1e-005	<0.015	0.03	<1e-005	<0.02
BCP2750	8/25/2009	9.36	7540	17	1200	25	2370	2590	<0.1	<1e-005	<0.015	<0.02	<1e-005	<0.02
BCP2750	9/22/2009	9.9	7560	17	1210	44	2420	2540	NM	NM	NM	NM	NM	NM
BCP2750	10/21/2009	9.89	7590	23	1130	52	2590	2580	<0.1	<1e-005	<0.015	<0.02	<1e-005	<0.02
BCP2750	11/24/2009	9.7	6850	21	933	79	2320	NM	0.14	<1e-005	<0.015	0.5	0.035	<0.02
BCP2750	12/10/2009	9.99	7500	21	986	116	2410	2500	<0.1	<1e-005	0.017	<0.02	0.01	<0.02
BYP2535	1/23/2009	8.42	8980	93	1250	417	2110	4340	0.135	0.006	<0.015	<0.02	3.87	0.011
BYP2535	2/20/2009	8.38	8590	59	1150	349	2050	3850	0.25	0.006	<0.02	<0.02	2.46	0.014
BYP2535	3/20/2009	8.11	7590	79	1240	274	2070	3340	0.17	0.005	0.024	<0.02	1.93	0.017
BYP2535	4/28/2009	7.86	7780	86	1210	321	2150	2960	0.12	0.006	<0.02	<0.02	1.736	0.019
BYP2535	5/22/2009	7.8	7730	126	1140	386	1940	3510	0.114	0.006	<0.02	0.19	6.2	0.021
BYP2535	6/24/2009	8.42	8050	83	1170	239	2040	2910	0.17	0.004	<0.02	<0.02	1.93	<0.01
BYP2535	8/4/2009	NM	NM	31	1210	28	2590	2590	<0.02	0.005	<0.02	<0.02	0.01	0.01
BYP2535	8/25/2009	9.3	7730	16	1200	23	2460	2550	0.022	0.005	<0.02	<0.02	<0.01	0.011
BYP2535	9/22/2009	9.66	7500	17	1150	40	2470	2580	0.038	0.006	<0.02	<0.02	<0.01	0.066
BYP2535	10/21/2009	9.77	7650	25	1160	50	2650	2610	<0.02	0.005	<0.02	<0.02	<0.01	0.011
BYP2535	11/24/2009	7.81	7480	100	1110	453	2000	3890	0.15	0.004	0.024	0.1	5.06	0.021
BYP2535	12/10/2009	10.02	7330	20	1010	126	2440	2500	<0.02	0.005	<0.02	<0.02	<0.01	<0.01
MCP2536	1/2/2009	7.67	NM	NM	NM	NM	NM	NM	<0.1	<1e-005	<0.015	<0.02	7.85	<0.02
MCP2536	1/9/2009	7.76	NM	NM	NM	NM	NM	NM	<0.1	<1e-005	<0.015	<0.02	3.61	<0.02
MCP2536	1/16/2009	6.92	NM	NM	NM	NM	NM	NM	<0.1	<1e-005	<0.015	0.021	6.38	<0.02
MCP2536	1/23/2009	7.7	8470	63	1170	395	2100	4320	<0.1	<1e-005	<0.015	<0.02	2.63	<0.02
MCP2536	1/30/2009	7.48	NM	NM	NM	NM	NM	NM	0.33	<1e-005	<0.015	<0.02	2.47	<0.02



Site	Date	pH SU	TDS (mg/L)	Alk (mg/L as CaCO3)	Ca-T (mg/L)	Mg-T (mg/L)	Cl (mg/L)	SO4 (mg/L)	Al-D (mg/L)	Cd-D (mg/L)	Cu-D (mg/L)	Fe-D (mg/L)	Mn-D (mg/L)	Zn-D (mg/L)
MCP2536	2/6/2009	7.74	NM	NM	NM	NM	NM	NM	<0.1	<1e-005	0.041	0.023	14.1	0.025
MCP2536	2/13/2009	NM	NM	NM	NM	NM	NM	NM	<0.1	<1e-005	<0.015	<0.02	1.71	<0.02
MCP2536	2/20/2009	7.59	8200	41	1070	326	1920	3650	<0.1	<1e-005	<0.015	<0.02	1.95	<0.02
MCP2536	2/27/2009	6.9	NM	NM	NM	NM	NM	NM	<0.1	<1e-005	<0.015	<0.02	0.44	<0.02
MCP2536	3/6/2009	8.39	NM	NM	NM	NM	NM	NM	0.15	<1e-005	<0.015	<0.02	1.06	<0.02
MCP2536	3/13/2009	8.02	NM	NM	NM	NM	NM	NM	<0.1	<1e-005	<0.015	<0.02	3.04	<0.02
MCP2536	3/20/2009	9.26	7030	14	1000	40	2030	2550	<0.1	<1e-005	<0.015	<0.02	<1e-005	<0.02
MCP2536	3/27/2009	8.43	NM	NM	NM	NM	NM	NM	<0.1	<1e-005	<0.015	<0.02	0.37	<0.02
MCP2536	4/3/2009	8.32	NM	NM	NM	NM	NM	NM	<0.1	<1e-005	<0.015	<0.02	0.6	<0.02
MCP2536	4/13/2009	8.12	NM	NM	NM	NM	NM	NM	<0.1	<1e-005	<0.015	<0.02	<1e-005	<0.02
MCP2536	4/16/2009	8.02	NM	NM	NM	NM	NM	NM	0.15	<1e-005	<0.015	<0.02	2.39	<0.02
MCP2536	4/28/2009	8.36	7430	43	1100	264	1880	3240	0.12	<1e-005	0.043	<0.02	0.85	<0.02
MCP2536	5/13/2009	7.74	NM	NM	NM	NM	NM	NM	0.17	<1e-005	<0.015	<0.02	3.57	<0.02
MCP2536	5/21/2009	7.95	7640	55	935	286	2000	3480	NM	NM	NM	NM	NM	NM
MCP2536	5/22/2009	NM	NM	NM	NM	NM	NM	NM	0.13	<1e-005	<0.015	0.14	2.32	<0.02
MCP2536	5/29/2009	9.32	NM	NM	NM	NM	NM	NM	<0.1	<1e-005	<0.015	<0.02	<1e-005	<0.02
MCP2536	6/4/2009	7.64	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MCP2536	6/10/2009	7.45	NM	NM	NM	NM	NM	NM	<0.1	<1e-005	<0.015	<0.02	1.58	<0.02
MCP2536	6/18/2009	8.22	NM	NM	NM	NM	NM	NM	0.12	<1e-005	<0.015	<0.02	0.82	<0.02
MCP2536	6/24/2009	8.08	7340	53	814	248	2000	3000	<0.1	<1e-005	<0.015	0.5	1.54	<0.02
MCP2536	7/1/2009	7.71	NM	NM	NM	NM	NM	NM	0.29	<1e-005	<0.015	<0.02	2.23	<0.02
MCP2536	8/4/2009	NM	NM	12	1120	27	2440	2580	<0.1	<1e-005	<0.015	<0.02	8.59C	<0.02
MCP2536	8/25/2009	9.1	7600	15	1090	37	2520	2620	<0.1	<1e-005	<0.015	<0.02	<1e-005	<0.02
MCP2536	9/22/2009	8.05	7250	8	1120	62	2350	2490	<0.1	<1e-005	<0.015	<0.02	0.047	<0.01
MCP2536	10/21/2009	9.62	7700	5	1050	53	2430	2530	<0.1	<1e-005	<0.015	<0.02	<1e-005	<0.02
MCP2536	11/24/2009	8.1	6950	56	1020	308	1960	3430	0.15	<1e-005	<0.015	Trace	1.36885	Trace
MCP2536	12/10/2009	9.92	7150	10	946	113	2370	2540	<0.1	<1e-005	<0.015	<0.02	<1e-005	<0.02